Burlington Electric Department
Energy Efficiency Annual Report

2004

Burlington Electric Department

2004 Energy Efficiency Annual Report

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Introduction & Summary

The Burlington Electric Department (BED) is pleased to submit the following report to the Vermont Public Service Board summarizing the implementation of energy efficiency programs in the City of Burlington for the year 2004. BED remains committed to offering its customers high quality and affordable energy services and a secure, environmentally sound supply of electricity into the future. Energy efficiency continues to play a major role in achieving this goal.

Burlington voters in 1990 approved a bond to fund energy efficiency programs that supported program activities through 2002. Since 2003, BED customers (like all other Vermont electric customers) pay a small monthly charge that supports efficiency programs. When these funding sources are considered along with customers' direct investment, close to $26 million has been invested in energy efficiency efforts sponsored by BED since 1991. This is comprised of over $13 million spent by BED on all of its energy efficiency efforts during that period, and about $13 million in matching expenditures by its customers. The ability to leverage these private funds is a strong testament to the value that BED customers place on these services, and to the concept of supplying a portion of Burlington's electric needs through the implementation of energy efficiency.

As the graph on page five indicates, the overall effect has been dramatic. Annual electricity consumption has actually declined 1% since 1989, saving participating customers almost $6.7 million of their retail electric costs annually. Meanwhile, the local economy has grown ever more vibrant. Energy efficiency expenditures are made almost entirely locally, typically in the form of professional services, skilled trades employment, and equipment upgrades. Not only is the value of the City's building and energy-using equipment stock improved, but local dollars are "recycled" many times in terms of increased employment and subsequent consumer spending. Compare this with expenditures for the generation fuel, which would otherwise have been required to provide the energy saved by these efforts. Such dollars are mostly exported out of state, and many of them, even out of the country.

During 2004 alone, BED saved 3,501 Megawatt hours (mWh) of energy from efficiency measures installed, which will result in 46,855 mWh of savings over useful life of the measures. This is equivalent to providing energy to about 600

Burlington residential customers for 13 years. During 2004, total BED program spending was $827,187 and participating customers spent an additional $638,820 of their own to fund energy efficiency investments in their buildings and facilities.

As the Total Resource Benefits table shows on page six, avoiding electric generation also avoids the associated air emissions and other environmental impacts. Thanks to energy savings (3,501 mWh) generated by energy efficiency programs in 2004 alone, Burlington will have avoided the release of 38,201 tons of carbon dioxide (CO2); the equivalent of removing 8,883 cars from U.S. highways. These reductions from reduced generation will then be in place for each of the next 13 years, on average. In addition to saving electricity, these same energy efficiency measures saved the City of Burlington 1,221 cubic feet of water during 2004 alone, about 16,384 cubic feet over the lifetime of these measures.

BED continues to offer services that address as wide as possible a range of customer segments and electric end-uses. About 40% of the total energy savings in 2004 were made up of lighting installations, 19% came from motor efficiency measures, 17% came from air conditioning savings and about 12% from switching electric hot water and electric space heating systems to the use of other fuels. The remainder of the savings came from industrial process efficiency, ventilation and refrigeration measures.

BED is very pleased with the 2004 aggregate results. Overall, BED's combined energy efficiency services exceeded energy-saving targets by 25%. BED projected 2,799 mWh savings and achieved 3,501 mWh. BED's projected budget was $823,608. BED spent $827,187, about .05% higher then projected. BED's cost for saved energy was below projections. BED estimated $295 per annualized mWh saved, and achieved $236 per annualized mWh saved. BED's administrative costs as a percentage of total program costs remained consistent with historical performance: about 30% of the budget was used to defray program operation costs.

Annual fluctuations in any energy efficiency program's performance depend on a variety of human and business cycle dimensions that are hard to quantify and even harder to predict with precision. The decision to move forward with an energy efficiency project is ultimately the individual customer's. Customers consider a wide variety of factors in their decision-making process, including their perceptions of local and national economic conditions and trends, their

availability of funds and competing interests for the use of those funds, fluctuations in their business functions and volumes, and the opinion of off-site consultants and/or decision makers. Yearly cost and savings fluctuations reflect the unpredictability of energy efficiency program timing and support the notion that *annual* projections are no more than rough estimates. In the long run, the performance of BED's energy efficiency programs is on pace with its resource planning expectations, laid out in BED's Integrated Resource Plan of 2004. The consistency of these programs' performance with what are now very old planning projections provides us unshakable confidence in the nature of energy efficiency as a stable, long-term energy resource.

This report includes coverage of BED's program activities related to the fifth year of operation of the State's — and the nation's — first Energy Efficiency Utility (EEU). Statewide energy efficiency programs are today operated under contract to the Vermont Public Service Board (PSB) by the non-profit service provider "Efficiency Vermont" (EVt). Based on its long history of successful program implementation, BED delivers the majority of these programs within its service territory, continuing to build on its past success in helping Burlington's consumer-owners achieve energy efficient electric use.

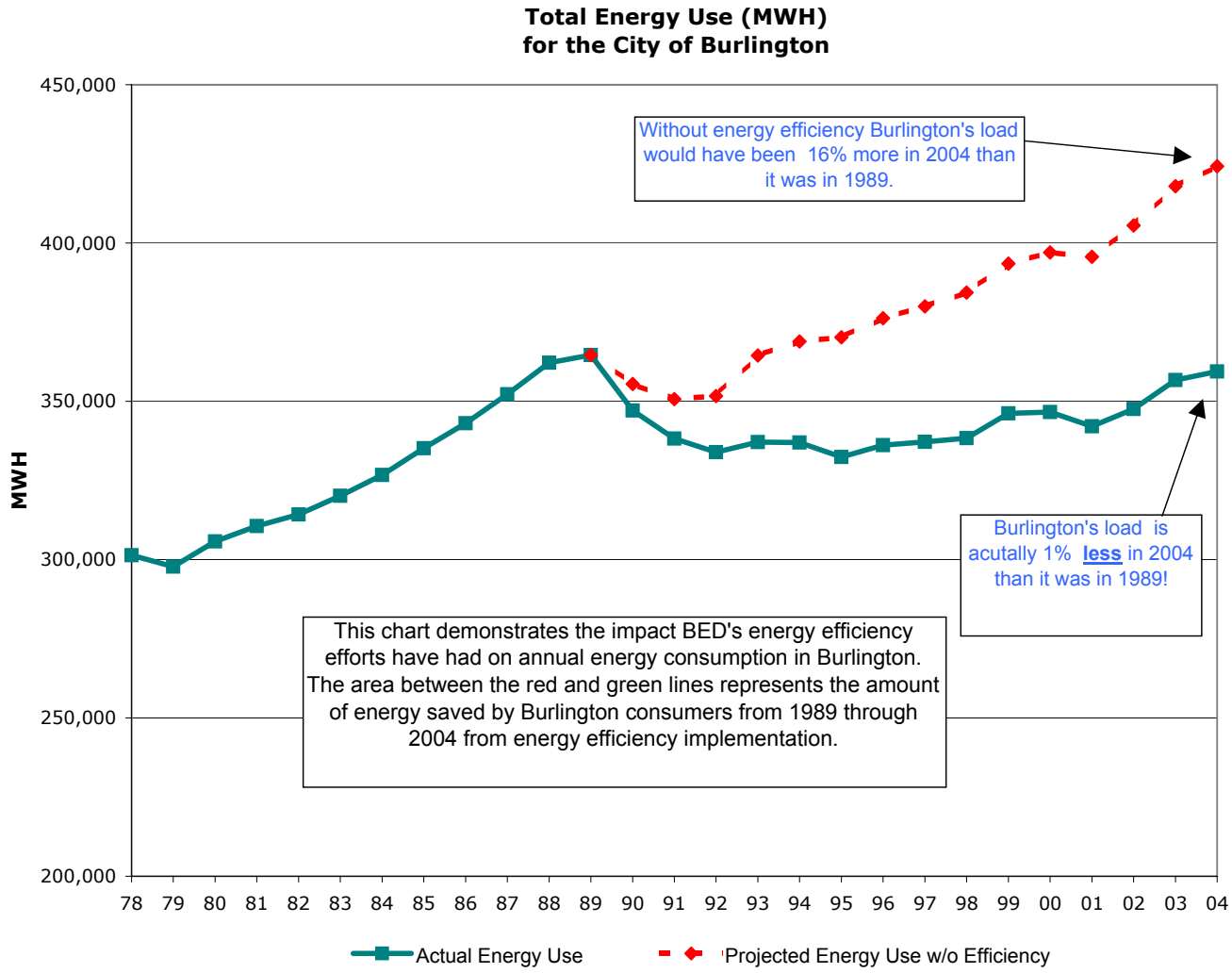
BED and EVt successfully implement a very detailed coordination plan established during the first year of EEU operations that has been beneficial to the two organizations, and ultimately to all of Vermont's ratepayers. BED looks forward to continuing its successful partnership with the EEU and embraces the opportunity to continue to work in concert with them to constantly improve the level of energy efficiency services delivered to Vermonters.

BED 's 2004 Annual Report is presented in sections. Pages 14-36 cover BED activities related to Business and Residential EEU services BED implements in Burlington. These EEU services are:

- Business New Construction
- Business Existing Facilities
- Residential New Construction
- Existing Homes
- Retail Products

Pages 40-53 cover programs BED has traditionally operated (non-EEU services) over and above the statewide EEU programs. These services are:

- Commercial Smartlight
- Neighbor$ave
- Residential Smartlight



Burlington Electric Total Resource Benefits

	2004	Lifetime (Present Value)
MWh saved	3,501	46,749
1) Avoided Cost of Electricity	$155,681	$2,080,990
1) Water Cost Savings	$9,759	$130,942
1) Fuel Cost Savings	-$13,165	-$159,203
1) Capacity Cost Savings	$258,288	$3,261,282
Total	$410,562	$5,314,011

	2004	
Annualized Energy Savings (kWh): Total	Meter	Generation
Winter on Peak	712,313	802,561
Winter off Peak	210,148	238,578
Summer On Peak	1,258,190	1,412,175
Summer off Peak	924,948	1,041,478

Coincident Demand Savings		
Winter	493	625
Spring-Fall	430	542
Summer	429	556

	2004	
	Gross	Net Lifetime Savings
Annualized Water Savings ccf	1,221	16,384
a.) Other Fuel MMBtu Savings (Increase)	(1,982)	(23,971)

a.) Burlington DHW fuel type distribution used

1) Cost information from 2004 DPS Screening Tool

2004 January - December Business and Residential Programs	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	1897	1,484	N/AV	N/AV	11,955
# of Participants with audit/analysis (5)	263	233	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	3	30	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	260	203	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$897,360**	**$827,187**	**$823,608**	**$508,317**	**$11,696,884**
Administration (9)	**$294,906**	**$253,113**	**N/AV**	**$0**	**$2,428,378**
General (10)	$159,144	$133,855	N/AV	N/AV	$2,085,766
Implementation (11)	$89,881	$38,382	N/AV	N/AV	$133,684
Program Planning (12)	$3,286	$4,273	N/AV	N/AV	$22,000
Marketing (13)	$30,017	$18,899	N/AV	N/AV	$105,170
IT Development (14)	$12,578	$57,704	N/AV	N/AV	$79,734
Implementation Costs (15)	**$365,692**	**$302,219**	**N/AV**	**$0**	**$2,564,557**
Services to Participants (16)	$365,692	$295,439	N/AV	N/AV	$2,552,796
Services to Trade Allies (17)	N/AV	$6,780	N/AV	N/AV	$11,761
Incentive Costs (18)	**$236,762**	**$271,855**	**N/AV**	**$0**	**$4,103,948**
Incentives to Participants (19)	$236,762	$271,064	N/AV	N/AV	$4,090,834
Incentives to Trade Allies (20)	N/AV	$791	N/AV	N/AV	$13,115
Total Participant Costs (21)	$554,328	$638,820	N/AV	N/AV	N/AV
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	N/AV	$19,067	N/AV	N/AV	N/AV
Total Program Costs (24)	**$1,451,636**	**$1,485,074**	**N/AV**	**$508,317**	**$24,335,785**
Total Measure Costs (25)	$1,451,636	$1,466,006	N/AV	N/AV	N/AV
Total Cost of Services (26)	$920,020	$941,038	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**3,345**	**3,501**	**2,799**	**1,954**	**61,529**
Lifetime mWh (28)	56,333	46,855	N/AV	N/AV	908,653
Winter Coincident Peak kW (29)	338 a	626	N/AV	N/AV	10,247
Summer Coincident Peak kW (30)	359 a	558	N/AV	N/AV	5,723
Annualized mWh/Participant (31)	2	2	N/AV	N/AV	5
Weighted Lifetime (32)	17	13	N/AV	N/AV	15

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		221	608.56	535.54	13,154.95	80.13	126.41	0.00	0.00
Cooking and Laundry		195	48.67	43.38	680.89	11.76	8.73	151.49	1,079.24
Hot Water:	Efficiency	49	13.64	12.74	106.20	1.77	1.32	5.59	141.80
	Fuel Switch	50	212.47	184.10	3,181.85	117.07	74.19	-805.49	0.00
Industrial Process Efficiency		3	144.99	130.69	2,244.51	67.92	60.22	-256.10	0.00
Lighting		1,096	1,415.71	1,280.02	13,453.13	247.92	239.82	-792.28	0.00
Motors		15	679.66	603.03	8,571.53	23.41	40.25	0.00	0.00
Refrigeration		93	60.00	53.04	789.43	3.24	3.57	0.00	0.00
Space Heat:	Efficiency	7	6.44	5.77	115.98	0.77	0.00	-0.75	0.00
	Fuel Switch	35	219.49	184.35	3,176.81	68.28	0.05	-799.15	0.00
Ventilation Only		53	57.50	49.32	801.38	1.07	1.07	560.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	2	14.23	12.54	306.84	1.64	1.35	124.92	0.00
	Fuel Switch	2	19.39	16.49	271.44	1.11	0.78	-45.63	0.00
Total			**3,500.75**	**3,111.01**	**46,854.93**	**626.08**	**557.78**	**-1,857.40**	**1,221.04**

n/ap = not applicable

N/AV =Data/information is Not Available

a = Corrected Value

January - December Business Programs		1991	1992	1993	1994	1995	1996	1997
# of Participants with installations (4)		8	52	164	104	163	150	160
# of Participants with audit/analysis (5)		38	171	105	107	47	36	44
# of audits/analyses w/ pending action (6)		73	80	57	65	73	67	24
# of audits/analyses with installations (7)		n/av	n/av	n/av	n/av	n/av	n/av	n/av
Program Costs								
BED Costs (8)		**$212,330**	**$317,680**	**$504,350**	**$424,258**	**$351,658**	**$315,994**	**$180,934**
Administration (9)		62,041	106,680	86,172	90,283	100,612	73,298	15,032
Implementation Costs (15)		24,467	38,909	77,126	148,552	99,223	78,111	63,331
Incentive Costs (18)		125,821	130,274	305,473	163,733	142,342	136,087	96,959
Evaluation Costs (23)		0	41,817	35,579	21,690	9,480	28,498	5,612
Total Participant Costs (21)		17,897	254,260	1,308,524	628,483	1,368,954	353,988	757,774
Total Program Costs (24)		**$230,228**	**$571,940**	**$1,812,874**	**$1,052,741**	**$1,720,612**	**$669,982**	**$938,708**
Benefits								
Annualized mWh (27)		**4,221**	**1,649**	**6,117**	**3,478**	**6,137**	**1,233**	**2,300**
Lifetime mWh (28)		12,196	20,687	81,172	45,202	88,386	16,150	33,565
Winter Coincident Peak kW (29)		138	553	1,499	952	0	0	0
Summer Coincident Peak kW (30)		0	0	0	0	1,615	278	668
Annualized mWh/Participant (31)		528	32	37	33	38	8	14
Weighted Lifetime (32)		3	13	13	13	14	13	15

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value

January-December Business and Residential Programs	1998	1999	2000	2001	2002	2003	2003	2004
# of Participants with installations (4)	692	677	1,027	1,365	1,796	1,897	1,897	1,484
# of Participants with audit/analysis (5)	75	70	11	24	N/AV	N/AV	N/AV	233
# of audits/analyses w/ pending action (6)	184	214	120	1	N/AV	N/AV	N/AV	30
# of audits/analyses with installations (7)	n/av	n/av	8	23	N/AV	N/AV	N/AV	203
Program Costs								
BED Costs (8)	**$312,082**	**$318,810**	**$632,525**	**$822,893**	**$948,535**	**$912,051**	**$912,051**	**$846,254**
Administration (9)	128,973	136,069	235,273	274,998	236,919	300,094	300,094	253,113
Implementation Costs (15)	74,463	79,088	196,557	280,081	345,428	365,692	365,692	302,219
Incentive Costs (18)	107,140	102,124	200,704	208,177	363,836	236,762	236,762	271,855
Evaluation Costs (23)	1,505	1,528	0	59,637	2,352	9,503	9,503	19,067
Total Participant Costs (21)	731,707	332,324	761,663	609,113	0	554,328	554,328	638,820
Total Program Costs (24)	**$1,043,789**	**$651,134**	**$1,394,198**	**$1,431,997**	**$2,127,230**	**$1,466,379**	**$1,466,379**	**$1,485,074**
Benefits								
Annualized mWh (27)	**3,202**	**1,303**	**3,132**	**3,097**	**4,437**	**3,345**	**3,345**	**3,501**
Lifetime mWh (28)	43,971	14,223	37,219	41,258	63,158	56,333	56,333	46,855
Winter Coincident Peak kW (29)	0	0	445	398	444	338	338	626
Summer Coincident Peak kW (30)	801	361	387	341	520	359	359	558
Annualized mWh/Participant (31)	5	2	3	2	2	2	2	2
Weighted Lifetime (32)	14	11	12	13	14	17	17	13

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value

January - December Business Programs		1991	1992	1993	1994	1995	1996	1997
# of Participants with installations (4)		8	52	164	104	163	150	160
# of Participants with audit/analysis (5)		38	171	105	107	47	36	44
# of audits/analyses w/ pending action (6)		73	80	57	65	73	67	24
# of audits/analyses with installations (7)		n/av	n/av	n/av	n/av	n/av	n/av	n/av
Program Costs								
BED Costs (8)		**$212,330**	**$317,680**	**$504,350**	**$424,258**	**$351,658**	**$315,994**	**$180,934**
Administration (9)		62,041	106,680	86,172	90,283	100,612	73,298	15,032
Implementation Costs (15)		24,467	38,909	77,126	148,552	99,223	78,111	63,331
Incentive Costs (18)		125,821	130,274	305,473	163,733	142,342	136,087	96,959
Evaluation Costs (23)		0	41,817	35,579	21,690	9,480	28,498	5,612
Total Participant Costs (21)		17,897	254,260	1,308,524	628,483	1,368,954	353,988	757,774
Total Program Costs (24)		**$230,228**	**$571,940**	**$1,812,874**	**$1,052,741**	**$1,720,612**	**$669,982**	**$938,708**
Benefits								
Annualized mWh (27)		**4,221**	**1,649**	**6,117**	**3,478**	**6,137**	**1,233**	**2,300**
Lifetime mWh (28)		12,196	20,687	81,172	45,202	88,386	16,150	33,565
Winter Coincident Peak kW (29)		138	553	1,499	952	0	0	0
Summer Coincident Peak kW (30)		0	0	0	0	1,615	278	668
Annualized mWh/Participant (31)		528	32	37	33	38	8	14
Weighted Lifetime (32)		3	13	13	13	14	13	15

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value

January-December Business Programs	1998	1999	2000	2001	2002	2003	2004
# of Participants with installations (4)	164	164	140	126	102	144	142
# of Participants with audit/analysis (5)	20	19	11	5	N/AV	N/AV	98
# of audits/analyses w/ pending action (6)	1	0	2	0	N/AV	N/AV	30
# of audits/analyses with installations (7)	n/av	n/av	8	5	N/AV	N/AV	68
Program Costs							
BED Costs (8)	**$206,356**	**$223,548**	**$365,273**	**$482,368**	**$562,613**	**$541,440**	**$452,286**
Administration (9)	78,794	92,318	107,021	131,190	120,284	149,748	115,797
Implementation Costs (15)	61,312	58,830	125,602	223,202	202,912	243,386	192,327
Incentive Costs (18)	65,048	72,401	132,650	84,728	239,166	148,306	140,233
Evaluation Costs (23)	1,202	0	0	43,248	252	0	3,929
Total Participant Costs (21)	615,144	270,396	613,597	384,762	557,275	254,905	507,253
Total Program Costs (24)	**$821,500**	**$493,944**	**$978,870**	**$867,130**	**$1,474,892**	**$796,345**	**$959,539**
Benefits							
Annualized mWh (27)	**2,767**	**1,055**	**2,440**	**2,067**	**2,887**	**2,193**	**2,505**
Lifetime mWh (28)	37,930	10,944	28,720	26,581	43,182	32,976 a	35,419
Winter Coincident Peak kW (29)	0	0	311	240	224	115 a	336
Summer Coincident Peak kW (30)	734	341	334	240	391	160 a	394
Annualized mWh/Participant (31)	17	6	17	16	28	15 a	18
Weighted Lifetime (32)	14	10	12	13	15	15	14

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value(s)

January - December Residential Programs	1990	1991	1992	1993	1994	1995	1996	1997
# of Participants with installations (4)	5,832	2,774	1,194	1,179	630	664	623	575
# of Participants with audit/analysis (5)	336	2,778	948	921	409	146	104	36
# of audits/analyses w/ pending action (6)	0	303	261	162	209	137	142	179
# of audits/analyses with installations (7)	n/av	n/av	n/av	n/av	n/av	n/av	n/av	n/av
Program Costs								
BED Costs (8)	**$993,583**	**$603,441**	**$454,256**	**$450,566**	**$186,036**	**$70,644**	**$147,326**	**$88,809**
Administration (9)	190,195	170,165	112,315	71,910	63,129	28,462	41,121	51,751
Implementation Costs (15)	227,016	215,666	148,632	110,050	65,104	27,473	22,799	13,112
Incentive Costs (18)	574,904	209,543	183,406	196,518	33,321	7,523	67,586	23,547
Evaluation Costs (23)	1,469	8,066	9,903	72,087	24,482	7,186	15,820	399
Total Participant Costs (21)	1,072,669	388,391	727,790	743,521	297,163	215,857	145,046	92,289
Total Program Costs (24)	**$2,066,252**	**$991,832**	**$1,182,046**	**$1,194,087**	**$483,199**	**$286,501**	**$292,372**	**$181,098**
Benefits								
Annualized mWh (27)	**5,219**	**3,047**	**3,642**	**3,506**	**1,024**	**627**	**1,052**	**363**
Lifetime mWh (28)	86,822	50,719	67,501	59,908	17,137	10,016	22,504	5,524
Winter Coincident Peak kW (29)	1,384	793	1,225	1,192	356	0	0	0
Summer Coincident Peak kW (30)	0	0	0	0	0	35	25	48
Annualized mWh/Participant (31)	1	1	3	3	2	1	2	1
Weighted Lifetime (32)	17	17	19	17	17	16	21	15

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value

January-December Residential Programs	1998	1999	2000	2001	2002	2003	2004
# of Participants with installations (4)	528	513	887	1,250	1,662	1,753	1,342
# of Participants with audit/analysis (5)	55	51	0	15	N/AV	194 a	135
# of audits/analyses w/ pending action (6)	183	214	118	1	N/AV	3 a	0
# of audits/analyses with installations (7)	n/av	n/av	0	14	N/AV	191 a	135
Program Costs							
BED Costs (8)	**$105,726**	**$95,261**	**$267,252**	**$340,525**	**$381,460**	**$370,610**	**$393,968**
Administration (9)	50,179	43,751	128,252	143,809	77,384	150,346	137,316
Implementation Costs (15)	13,151	20,259	70,955	56,879	192,519	122,306	109,891
Incentive Costs (18)	42,092	29,723	68,054	123,449	109,456	88,456	131,622
Evaluation Costs (23)	303	1,528	0	16,388	2,100	9,503	15,139
Total Participant Costs (21)	116,563	61,929	148,066	224,351	266,415	299,423	131,566
Total Program Costs (24)	**$222,289**	**$157,190**	**$415,328**	**$564,867**	**$652,338**	**$670,033**	**$525,534**
Benefits							
Annualized mWh (27)	**435**	**248**	**692**	**1,030**	**1,550**	**1,152**	**996**
Lifetime mWh (28)	6,041	3,279	8,499	14,677	19,976	23,357	11,436
Winter Coincident Peak kW (29)	0	0	134	158	220	223	290
Summer Coincident Peak kW (30)	67	20	53	101	128	199	164
Annualized mWh/Participant (31)	1	0	1	1	1	1	1
Weighted Lifetime (32)	14	13	12	14	13 a	20 a	11

* 1991 Includes energy savings from Burlington School Department heating conversion completed during late 1989
a = Corrected Value

Overview of EEU Services Results

Overall in 2004, the EEU services that BED implemented in partnership with Efficiency Vermont exceeded annualized mWh targets by 26%. BED projected 2,496 annualized mWh savings and achieved 3,159 annualized mWh. This is largely due to the completion of several large commercial and industrial projects and large housing projects that had been in the planning stages in prior years. BED spent $760,602 in 2004, which is about 2% less then the projected budget of $780,956. In total, BED's EEU Services implementation saved 3,159 mWh of energy annually from installed measures that will result in 45,578 mWh savings over the equipment's useful life.

BED's cost per annualized mWh saved for 2004 was 30% lower than estimated. BED estimated $313 per annualized mWh saved but achieved $241 per annualized mWh saved. BED's administrative costs as a percentage of total program costs remained consistent with historical performance: about 25% of the budget was used to defray program operation costs.

In the first five years of the Energy Efficiency Utility both organizations have exceeded savings estimates and have done so at a lower cost per mWh than anticipated. Energy efficiency is now being delivered at a total cost of under 3 cents per kilowatt-hour statewide. When compared with other energy sources, energy efficiency remains the state's best bargain for future supply. Avoiding electric generation also avoids the associated air emissions and other environmental impacts that effect Vermont and the region.

2004 January - December Business and Residential EEU Programs	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	1673	1,280	N/AV	N/AV	5,087 b
# of Participants with audit/analysis (5)	241	209	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	3	30	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	238	179	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$829,207**	**$760,602**	**$780,557**	**$463,317**	**$10,191,891**
Administration (9)	**$219,003**	**$192,601**	**N/AV**	**$0**	**$1,852,377**
General (10)	$124,807	$89,515	N/AV	N/AV	$1,567,503
Implementation (11)	$50,792	$29,549	N/AV	N/AV	$85,762
Program Planning (12)	$3,106	$3,597	N/AV	N/AV	$21,143
Marketing (13)	$27,720	$17,294	N/AV	N/AV	$101,269
IT Development (14)	$12,578	$52,645	N/AV	N/AV	$74,675
Implementation Costs (15)	**$351,444**	**$296,146**	**N/AV**	**$0**	**$2,081,680**
Services to Participants (16)	$351,444	$289,366	N/AV	N/AV	$2,069,919
Services to Trade Allies (17)	N/AV	$6,780	N/AV	N/AV	$11,761
Incentive Costs (18)	**$258,760**	**$271,855**	**N/AV**	**$0**	**$3,657,834**
Incentives to Participants (19)	$258,760	$271,064	N/AV	N/AV	$3,644,720
Incentives to Trade Allies (20)	N/AV	$791	N/AV	N/AV	$13,115
Total Participant Costs (21)	$532,330	$638,820	N/AV	N/AV	N/AV
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	N/AV	$19,067	N/AV	N/AV	N/AV
Total Program Costs (24)	**$1,361,485**	**$1,418,489**	**N/AV**	**$463,317**	**$22,280,955**
Total Measure Costs (25)	$1,361,485	$1,399,422	N/AV	N/AV	N/AV
Total Cost of Services (26)	$883,774	$934,966	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**2,977**	**3,159**	**2,496**	**1,644**	**54,185**
Lifetime mWh (28)	54,990	45,578	N/AV	N/AV	872,048
Winter Coincident Peak kW (29)	313 a	563	N/AV	N/AV	9,292
Summer Coincident Peak kW (30)	340 a	479	N/AV	N/AV	4,958
Annualized mWh/Participant (31)	2	2	N/AV	N/AV	11
Weighted Lifetime (32)	18	14	N/AV	N/AV	16

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	221	608.56	535.54	13,154.95	80.13	126.41	0.00	0.00
Cooking and Laundry		195	48.67	43.38	680.89	11.76	8.73	151.49	1,079.24
Hot Water:	Efficiency	15	2.15	1.84	16.44	0.37	0.27	5.59	19.20
	Fuel Switch	50	212.47	184.10	3,181.85	117.07	74.19	-805.49	0.00
Industrial Process	Efficiency	3	144.99	130.69	2,244.51	67.92	60.22	-256.10	0.00
Lighting		916	1,085.86	980.51	12,266.10	185.82	162.49	-534.57	0.00
Motors		15	679.66	603.03	8,571.53	23.41	40.25	0.00	0.00
Refrigeration		93	60.00	53.04	789.43	3.24	3.57	0.00	0.00
Space Heat:	Efficiency	7	6.44	5.77	115.98	0.77	0.00	-0.75	0.00
	Fuel Switch	35	219.49	184.35	3,176.81	68.28	0.05	-799.15	0.00
Ventilation Only		53	57.50	49.32	801.38	1.07	1.07	560.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	2	14.23	12.54	306.84	1.64	1.35	124.92	0.00
	Fuel Switch	2	19.39	16.49	271.44	1.11	0.78	-45.63	0.00
Total			**3,159.42**	**2,800.59**	**45,578.13**	**562.59**	**479.40**	**-1,599.69**	**1,098.44**

n/ap = not applicable

N/AV =Data/information is Not Available

a = Corrected Value

b = Current Unique Participants for the lifetime of the program are unavailable due to program restructuring, information expected to be available for 2005

Business Services Overview

2004 marked the second year of a three-year program cycle. 2004 savings continued to exceed projections, keeping BED on track to exceed our three-year goals.

Overall, 2004 provided continued excellent results in virtually all areas of business services. BED exceeded the 2004 energy saving goals for the Business Energy Efficiency Utility (EEU) Programs. BED projected 1,596 megawatt-hour (mWh) savings in 2004, while achieving actual annual energy savings of 2,197 mWh. This effort exceeded savings projections by 37%. Lifetime mWh savings from installed measures were 34,371. BED's cost to deliver the C&I (Commercial & Industrial) EEU programs in 2004 was $402,368, below the budgeted amount of $432,199 by 7%. The total cost per mWh was $183 or 68% of the projected $271/mWh.

The main variance in BED's 2004 C&I programs was the shift of costs from Business Existing Facilities to the New Construction Program. The new construction market in Burlington was very active in 2004. In order to capitalize on the opportunities available during new construction, BED worked diligently with owners and design teams to recommend high efficiency systems and avoid lost opportunities.

BED's successful Commercial Smartlight leasing program remains a separate program. Results are reported under the BED non-EEU Programs section of this report.

It is often difficult to forecast savings and expenses in the C&I sector in Burlington. This is due to the potential for completion of a few large unexpected projects by one or two customers, dramatically exceeding projections and budgets. On the other hand, savings goals may just as unpredictably be missed due to delays or cancellations of planned significant projects.

This section of the report contains information on BED's Business EEU Programs: Business New Construction and Business Existing Facilities (Market Opportunities & Retrofit).

2004 January - December Business EEU Programs	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	69	70	N/AV	89	628 b
# of Participants with audit/analysis (5)	69	98	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	30	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	69	68	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$495,120**	**$402,368**	**$432,199**	**$463,317**	**$4,305,998**
Administration (9)	**$97,960**	**$73,137**	**N/AV**	**$0**	**$924,612**
General (10)	$51,941	$37,479	N/AV	N/AV	$848,886
Implementation (11)	$24,142	$3,648	N/AV	N/AV	$9,244
Program Planning (12)	$1,450	$1,572	N/AV	N/AV	$3,144
Marketing (13)	$15,829	$12,778	N/AV	N/AV	$31,626
IT Development (14)	$4,599	$17,660	N/AV	N/AV	$31,711
Implementation Costs (15)	**$234,725**	**$188,998**	**N/AV**	**$0**	**$1,152,819**
Services to Participants (16)	$234,725	$182,218	N/AV	N/AV	$1,146,039
Services to Trade Allies (17)	N/AV	$6,780	N/AV	N/AV	$6,780
Incentive Costs (18)	**$162,435**	**$140,233**	**N/AV**	**$0**	**$2,228,567**
Incentives to Participants (19)	$162,435	$140,064	N/AV	N/AV	$2,228,228
Incentives to Trade Allies (20)	N/AV	$170	N/AV	N/AV	$339
Total Participant Costs (21)	$240,776	$507,253	N/AV	N/AV	$7,440,179
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	N/AV	$3,929	N/AV	N/AV	N/AV
Total Program Costs (24)	**$735,896**	**$913,549**	**N/AV**	**$463,317**	**$11,872,758**
Total Measure Costs (25)	$735,896	$909,621	N/AV	N/AV	$11,746,177
Total Cost of Services (26)	$475,501	$696,251	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**1,867**	**2,197**	**1,596**	**1,644**	**34,021**
Lifetime mWh (28)	31,891	34,371	N/AV	N/AV	495,865
Winter Coincident Peak kW (29)	97 a	279	N/AV	N/AV	3,944
Summer Coincident Peak kW (30)	151 a	319	N/AV	N/AV	4,293
Annualized mWh/Participant (31)	27	31	N/AV	18	54
Weighted Lifetime (32)	17	16	N/AV	N/AV	15

End Use	# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency	26	599.06	524.53	13,010.47	80.13	110.25	0.00	0.00
Cooking and Laundry	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water: Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process Efficiency	3	144.99	130.69	2,244.51	67.92	60.22	-256.10	0.00
Lighting	50	661.37	598.27	8,877.70	100.24	105.74	-452.31	0.00
Motors	15	679.66	603.03	8,571.53	23.41	40.25	0.00	0.00
Refrigeration	6	38.57	33.41	465.76	0.94	1.35	0.00	0.00
Space Heat: Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fuel Switch	3	17.77	15.39	301.99	5.22	0.04	-0.25	0.00
Ventilation Only	4	47.50	40.82	698.52	0.00	0.00	560.00	0.00
Water Conservation	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other: Efficiency	2	8.04	7.29	201.00	0.90	0.90	0.00	0.00
Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		**2,196.96**	**1,953.43**	**34,371.47**	**278.76**	**318.75**	**-148.66**	**0.00**

n/ap = not applicable

N/AV =Data/information is Not Available

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Business New Construction

Program Description

This program helps commercial and industrial builders and developers incorporate the most energy efficient products and systems possible when building or renovating. It is designed to help customers exceed the City of Burlington's required Guidelines for Energy Efficient Construction when building or renovating their facilities. By working directly and early on with designers and owners, BED assists in the choice of energy efficient systems, products, materials and construction techniques that meet business and energy needs.

The program offers prescriptive and custom tracks for Act 250 and non-Act 250 projects and provides financial incentives for the installation of cost effective efficiency measures. It includes a minimum package of efficiency criteria including lighting, motors and HVAC systems that all customers must include to be eligible to participate. In addition, it provides customers with technical assistance, verification services and incentives. BED's Business New Construction program addresses all energy (especially electricity) consuming equipment, components or practices, including motors, lighting, heating, ventilation and air-conditioning (HVAC).

Natural gas is almost universally available for HVAC applications in Burlington. To insure comprehensiveness in building and system designs, BED coordinates with Vermont Gas Systems (VGS) on almost every project. The two utilities notify each other when projects are identified or when major changes are considered by the developers or the design teams.

BED maximizes the adoption of energy efficient systems and techniques through proactive outreach and recruitment. As both an electric distribution utility and a municipal department with a role in the City's design review process, BED is in a unique position to identify new construction and major renovation before significant design efforts begin. BED coordinates this effort with other city agencies including the city's Planning & Zoning Department and its Department of Public Works. See the Design Review Guide (Attachment A) for an example of our coordinated efforts.

BED continues to provide enforcement and administration of the Guidelines for Energy Efficient Construction for the City of Burlington, VT, the energy code for all new construction and renovation in the City. Burlington is the only municipality in the State of Vermont that currently enforces a commercial and industrial building energy code.

The benefits of the Business New Construction program have evolved into a very important facet of the city's economic development efforts. Because BED is involved in the very earliest stages of project development, the benefits of energy efficiency are packaged along with other attractive elements that entice businesses to locate facilities in the city, enhancing employment growth and economic development in Burlington.

Program Highlights

Results in this program were very impressive. In 2004 there were 7 participants with completed installations with corresponding energy savings exceeding projections by 60% at 611 megawatt-hours (mWh) versus the projected 383 mWh. Lifetime savings were 14,224 mWh. Peak coincident demand savings totaled 90 kilowatts (kW) in the winter and 88 kW in the summer.

Program spending totaled $167,230, or 38% higher than the projected spending of $121,271. BED program spending leveraged an additional $114,327 in participant spending.

Project highlights:

- Champlain College occupied two new facilities in 2004. The Center for Global

Business and the Student Life Complex incorporate many efficiency measures from energy efficient transformers to variable air volume HVAC systems and efficient lighting. BED worked with Champlain College to reinvest the incentive earned by these efficient designs to help study, design and expand their ice storage cooling system. As a result of our combined efforts, Champlain College is operating two very efficient facilities and provides cooling to the new facilities with a system that takes advantage of off-peak energy rates. BED also benefits from this demand shift.

Variance Discussion

As stated earlier, program savings were 60% above the projections included in BED's budget for 2004 while spending was 38% higher than budgeted amounts. The combined affect is that annual savings were captured at a cost of $274/mWh or 87% of the $316/mWh projection.

2004 was a very busy year for new construction in Burlington, for completed projects as well as projects in the design phase. In some ways, savings for 2004 can be attributed to past design assistance efforts and spending is indicative of future savings. Because the new construction market has been steadily busy, the savings and spending values are aligned. Long-term results are a better indicator of what can be expected on an annual basis.

2004 January - December Business New Construction	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	10	7	N/AV	10	32 b
# of Participants with audit/analysis (5)	10	10	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	2	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	10	8	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$187,473**	**$167,230**	**$121,271**	**$130,002**	**$765,791**
Administration (9)	**$37,013**	**$42,401**	**N/AV**	**$0**	**$84,803**
General (10)	$18,862	$16,352	N/AV	N/AV	$32,704
Implementation (11)	$4,285	$3,436	N/AV	N/AV	$6,873
Program Planning (12)	$812	$705	N/AV	N/AV	$1,410
Marketing (13)	$11,515	$14,507	N/AV	N/AV	$29,014
IT Development (14)	$1,540	$7,401	N/AV	N/AV	$14,802
Implementation Costs (15)	**$90,471**	**$62,402**	**N/AV**	**$0**	**$124,805**
Services to Participants (16)	$90,471	$62,402	N/AV	N/AV	$124,805
Services to Trade Allies (17)	n/ap	$0	n/ap	N/AV	$0
Incentive Costs (18)	**$59,988**	**$62,426**	**N/AV**	**$0**	**$556,183**
Incentives to Participants (19)	$59,988	$62,426	N/AV	N/AV	$556,183
Incentives to Trade Allies (20)	n/ap	$0	n/ap	N/AV	$0
Total Participant Costs (21)	$61,298	$114,327	N/AV	N/AV	$746,887
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	N/AV	$3,540	N/AV	N/AV	N/AV
Total Program Costs (24)	**$248,771**	**$285,097**	**N/AV**	**$130,002**	**$1,519,759**
Total Measure Costs (25)	$248,771	$281,557	N/AV	N/AV	$1,512,678
Total Cost of Services (26)	$151,769	$176,729	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**450**	**611**	**383**	**395**	**3,024**
Lifetime mWh (28)	6,017	14,224	N/AV	N/AV	45,268
Winter Coincident Peak kW (29)	19	90	N/AV	N/AV	288
Summer Coincident Peak kW (30)	57	88	N/AV	N/AV	403
Annualized mWh/Participant (31)	45	87	N/AV	40	96
Weighted Lifetime (32)	13	23	N/AV	N/AV	15

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	4	453.95	393.28	11,062.52	67.06	63.26	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		4	130.58	119.69	2,582.75	21.55	22.68	-80.36	0.00
Motors		2	18.86	16.21	377.30	0.92	1.18	0.00	0.00
Refrigeration		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	2	8.04	7.29	201.00	0.90	0.90	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		**0.00**	**611.43**	**536.46**	**14,223.57**	**90.42**	**88.02**	**-80.36**	**0.00**

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N/AV =Data/information is Not Available

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Business Existing Facilities
(Market Opportunities & Retrofit Services)

Program Description

Business Existing Facilities, Market Opportunity Program (MOP) targets naturally-occurring market events in an attempt to achieve energy efficiency savings. These services are designed to secure savings in the equipment replacement market. Targeted equipment includes lighting, heating, ventilation, cooling, water heating, refrigeration, motors and drives and industrial process applications. This program offers prescriptive and custom tracks, with technical assistance and financial incentives that encourage the adoption of cost effective, high efficiency alternatives at the time when equipment is being replaced.

BED offers prescriptive incentives (fixed incentives for specific eligible measures) for building lighting, motors, unitary HVAC equipment and dual enthalpy economizers for unitary HVAC units. BED and Efficiency Vermont (EVt) participate in regional programs for motors and HVAC equipment, enhancing the market transformation benefits of EVt's efforts. Incentive application forms are supplied to wholesalers, contractors, and customers. A prescriptive list of incentives for the various equipment sizes and types is shown on the relevant forms.

Other cost-effective measures are also eligible for custom incentives. Custom incentives are designed to minimize program costs, while capturing as many lost opportunity resources as possible. BED staff and trade allies serving Burlington (including equipment vendors, manufacturers, suppliers, contractors, architects and engineers) market the program to potential participants.

Business Existing Facilities, Retrofit Program offers energy efficiency services that have been provided by BED staff for over a decade. Building retrofit entails BED staff and/or trade allies auditing customer buildings and systems to identify energy efficiency opportunities for the customer. When promising projects are identified, BED staff prepares analyses and reports for the customer showing the costs and benefits of the measures involved. This service is offered to all business

customers – from the smallest business to the largest commercial and industrial facility. Given BED's long history of delivering this service, the offering has reached a high level of maturity and customer acceptance. Facility managers have been very receptive to the overall program design and technical assistance offered by BED staff.

Business Existing Facilities (MOP & Retrofit) Highlights

BED Commercial Services staff leveraged existing relationships with customers and trade allies to effectively implement many prescriptive and custom projects. The program assisted 63 individual locations, many of which installed multiple efficiency measures. The annualized megawatt-hour (mWh) savings for 2004 were 1,586, or 30% higher than projections. Total BED program costs were $235,138, 24% below the budgeted amount of $310,928. The resultant actual cost per mWh is $148/mWh, 42% lower than the projected $256/MWh cost.

The Business Existing Facilities 2004 End-Use Activity table shows significant diversity in the end use savings. The diversity of savings across these major end uses demonstrates a high level of comprehensiveness, a salient program feature. In addition, a majority of these efficiency measures are strongly coincident with summer loads and thus provide significant avoided peak energy costs to BED.

Some individual project highlights include:

- BED worked with the University of Vermont to replace the lighting in the Gutterson field house. After a test period that gave UVM a chance to look at the proposed fixtures, forty-four 1,000 watt high-bay metal halide fixtures were

replaced with 10-lamp T5 fixtures. T-5 fixtures also replaced older fluorescents around the indoor track. As a result, UVM has standardized the lamps in the area, improved the quality of lighting and is saving 100,000 kWh per year.

- BED worked with the owner and engineer of a condo association to evaluate and install variable frequency drives and associated controls on 3 pumping systems. The facility is saving over 175,000 kWh per year and is experiencing the lowest electricity bills in the building's 10-year history.
- A local restaurant replaced their old T-12 fluorescent lighting and some of the decorative incandescent lamps to high performance T-8 lighting and compact fluorescent lamps. The establishment is saving 10,000 kWh per year.

Variance Discussion

During the 2004 program year, program funds were shifted from Business Existing Facilities to Business New Construction due to the exceptional amount of activity in the new construction and market opportunity programs. It is critically important that opportunities in new construction be captured when they are available, since these are inherently one-time opportunities. Retrofit opportunities for the most part can be mined as needed.

Along with the increased cost of the MOP program ($206,941, 58% higher than the budgeted $130,928) were increased savings totaling 1,445 mWh/yr or 78% more than the projected 814 mWh. 60 participants took advantage of the MOP program, compared to 46 in 2003. Savings were achieved at $143/mWh, compared to the projected $161/mWh.

Three businesses completed projects in the Retrofit program, compared to 13 in 2003. Costs and savings were under projections primarily due to the activity in the MOP and New Construction programs. Savings for the retrofit program were 35% of the projected 399 mWh, at 140 mWh. Costs were 16% of the budgeted $180,000, at $28,197. Most importantly, the value of these few projects was excellent, at $201/MWh, 45% of the projected $451/MWh.

Overall, as stated in the Highlights section above, the Business Existing Facilities services initiative performed very well – delivering savings at below target costs.

2004 January - December BEF- Retrofit	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	13	3	N/AV	10	378 b
# of Participants with audit/analysis (5)	13	13	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	7	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	13	6	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$73,241**	**$28,197**	**$180,000**	**$192,960**	**$2,891,993**
Administration (9)	**$12,303**	**$6,600**	**N/AV**	**$0**	**$791,539**
General (10)	$3,469	$2,177	N/AV	N/AV	$778,281
Implementation (11)	$3,239	$1,290	N/AV	N/AV	$4,529
Program Planning (12)	$0	$0	N/AV	N/AV	$0
Marketing (13)	$4,303	-$1,767	N/AV	N/AV	$2,536
IT Development (14)	$1,292	$4,901	n/ap	n/ap	$6,193
Implementation Costs (15)	**$28,962**	**$19,786**	**N/AV**	**$0**	**$814,397**
Services to Participants (16)	$28,962	$13,006	N/AV	N/AV	$807,617
Services to Trade Allies (17)	$0	$6,780	n/ap	n/ap	$6,780
Incentive Costs (18)	**$31,977**	**$1,810**	**N/AV**	**$0**	**$1,286,057**
Incentives to Participants (19)	$31,977	$1,810	N/AV	N/AV	$1,286,057
Incentives to Trade Allies (20)	$0	$0	n/ap	n/ap	$0
Total Participant Costs (21)	$23,311	$27,864	N/AV	N/AV	$5,591,854
Total Third Party Costs (22)	$0	n/ap	n/ap	n/ap	N/AV
Evaluation Costs (23)	$0	$0	N/AV	N/AV	$118,723
Total Program Costs (24)	**$96,552**	**$56,061**	**N/AV**	**$192,960**	**$8,602,570**
Total Measure Costs (25)	$96,552	$56,061	N/AV	N/AV	$8,483,846
Total Cost of Services (26)	$52,273	$47,650	N/AV	N/AV	$6,406,251
Benefits					
Annualized mWh (27)	**415**	**140**	**399**	**411**	**25,576**
Lifetime mWh (28)	6,536	1,496	N/AV	N/AV	364,663
Winter Coincident Peak kW (29)	41 a	1	N/AV	N/AV	3,213
Summer Coincident Peak kW (30)	56 a	1	N/AV	N/AV	3,248
Annualized mWh/Participant (31)	32	47	N/AV	41	68
Weighted Lifetime (32)	16	11	N/AV	N/AV	14

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process	Efficiency	1	6.26	5.30	75.07	0.00	0.00	84.90	0.00
Lighting		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motors		1	117.99	105.23	1,179.94	0.00	0.00	0.00	0.00
Refrigeration		1	16.06	13.78	240.85	0.94	1.35	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**140.31**	**124.32**	**1,495.86**	**0.94**	**1.35**	**84.90**	**0.00**

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Residential Service Overview

A new three-year Energy Efficiency Utility program cycle began in 2003 with new goals established for savings and budgets. BED's residential retrofit services formerly offered under the Heat Exchange, Low-income Single Family, Low-Income Multi-Family and Renovation programs were merged together into the Residential Existing Homes service at that time.

BED's own Smartlight CFL leasing program and the Neighborsave program for electric hot water customers remain separate services reported as in past years under the BED Non-EEU Residential Services section of this report.

2004 provided continued strong results in residential services. Overall, BED exceeded the 2004 energy saving goals for all Residential Services. BED projected 936 mWh savings in 2004, while achieving actual annual energy savings of 995 mWh. Lifetime mWh savings were 11,437.

For Residential EEU services alone, BED projected 898 mWh savings in 2004, while achieving actual annual energy savings of 962 mWh - exceeding savings projections by about 7%. Lifetime mWh savings were 11,207. BED's cost to deliver the Residential EEU services in 2004 was $358,234, higher then the budgeted amount of $348,358 by about 2%.

This section of the report contains information on BED's Residential EEU Services: Residential New Construction, Retail Products and Residential Existing Buildings and BED Non-EEU Residential Services: Smartlight and Neighbor$ave.

2004 January - December Residential EEU Programs	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	1604	1,210	N/AV	N/AV	4,459 b
# of Participants with audit/analysis (5)	172	111	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	3	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	169	111	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$334,086**	**$358,234**	**$348,358**	**$0**	**$5,885,893**
Administration (9)	**$121,042**	**$119,464**	**N/AV**	**$0**	**$927,765**
General (10)	$72,866	$52,036	N/AV	N/AV	$718,617
Implementation (11)	$26,650	$25,902	N/AV	N/AV	$76,518
Program Planning (12)	$1,656	$2,025	N/AV	N/AV	$17,999
Marketing (13)	$11,891	$4,516	N/AV	N/AV	$69,642
IT Development (14)	$7,979	$34,985	N/AV	N/AV	$42,964
Implementation Costs (15)	**$116,719**	**$107,148**	**N/AV**	**$0**	**$928,861**
Services to Participants (16)	$116,719	$107,148	N/AV	N/AV	$923,880
Services to Trade Allies (17)	$0	$0	N/AV	N/AV	$4,981
Incentive Costs (18)	**$96,325**	**$131,622**	**N/AV**	**$0**	**$1,429,267**
Incentives to Participants (19)	$96,325	$131,000	N/AV	N/AV	$1,416,492
Incentives to Trade Allies (20)	$0	$622	N/AV	N/AV	$12,776
Total Participant Costs (21)	$291,554	$131,566	N/AV	N/AV	N/AV
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	$0	$15,139	N/AV	N/AV	N/AV
Total Program Costs (24)	**$625,588**	**$504,940**	**N/AV**	**$0**	**$10,408,198**
Total Measure Costs (25)	$625,588	$489,801	N/AV	N/AV	N/AV
Total Cost of Services (26)	$408,273	$238,715	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**1,111**	**962**	**900**	**0**	**20,163**
Lifetime mWh (28)	23,099	11,207	N/AV	N/AV	376,183
Winter Coincident Peak kW (29)	215	284	N/AV	N/AV	5,349
Summer Coincident Peak kW (30)	189	161	N/AV	N/AV	665
Annualized mWh/Participant (31)	1	1	N/AV	N/AV	5
Weighted Lifetime (32)	21	12	N/AV	N/AV	19

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	195	9.51	11.01	144.48	0.00	16.17	0.00	0.00
Cooking and Laundry		195	48.67	43.38	680.89	11.76	8.73	151.49	1,079.24
Hot Water:	Efficiency	15	2.15	1.84	16.44	0.37	0.27	5.59	19.20
	Fuel Switch	50	212.47	184.10	3,181.85	117.07	74.19	-805.49	0.00
Industrial Process	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		866	424.49	382.24	3,388.41	85.58	56.75	-82.26	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		87	21.43	19.63	323.67	2.30	2.22	0.00	0.00
Space Heat:	Efficiency	7	6.44	5.77	115.98	0.77	0.00	-0.75	0.00
	Fuel Switch	32	201.71	168.96	2,874.82	63.07	0.01	-798.90	0.00
Ventilation Only		49	10.00	8.49	102.86	1.07	1.07	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	6.19	5.25	105.84	0.74	0.45	124.92	0.00
	Fuel Switch	2	19.39	16.49	271.44	1.11	0.78	-45.63	0.00
Total			**962.46**	**847.16**	**11,206.67**	**283.83**	**160.65**	**-1,451.03**	**1,098.44**

n/ap = not applicable

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Residential New Construction

Service Description

This service aims to improve the efficiency of all new homes (single-family and multi-family including low-income multi-family projects) and buildings undergoing substantial renovation. It addresses all major end uses: space heating, water heating, central cooling (if applicable), ventilation, major appliances and lighting for high use areas. Residential New Construction (RNC) encourages builders and consumers to build to the Vermont Energy Star Home standard. This standard specifies that homes meet the Energy Star performance standard (representing nearly 20% savings in heating, cooling and hot water consumption relative to the Vermont Residential Building Energy Standard (RBES). The standard also requires that at least four lighting fixtures in high use areas be energy efficient, and efficient automatically controlled mechanical ventilation be installed.

The Vermont Energy Star standard is promoted to builders and consumers through a combination of marketing, technical assistance to builders, provision of energy ratings, and a package of incentives for efficient lighting fixtures, major appliances and ventilation equipment.

BED uses several methods to encourage participation. These include:

- B.E.D staff attends local monthly Technical Review meetings where all new construction and virtually all substantial renovation projects are introduced to the Burlington Planning and Zoning Department staff as part of the City's local project approval process. At these meetings BED explains the RNC program to the permit applicant and gives them program literature. BED then forwards the project information to **Vermont Wise Energy Services** to follow-up with the developer. For larger multi-family projects BED staff (in partnership with Vermont Gas Systems) works directly with the property owner.

- BED receives monthly "Development Case Load" updates (ATTACHMENT C) from the Department of Planning and

Zoning that tracks the progress of each of the development projects in Burlington.

- New and revised electric service and line extension applications help us track smaller renovation projects that may have bypassed the City's permit approval process. All 'ability to serve" letters from BED include information about energy efficiency services (ATTACHMENT D).

- The Burlington Department of Public Works Inspection Division (DPW) refers projects to BED to help them ensure compliance with RBES and to assess opportunities for exceeding requirements. DPW requires a compliance memo from BED before issuing the building permit (ATTACHMENT E).

Program Highlights

It is worth noting the high level of collaboration that routinely occurs between BED and Vermont Gas Systems, who have been particularly helpful to BED on many new-construction projects. The energy efficiency partnership that has formed between these two utilities accrues to the benefit of our mutual ratepayers.

Sustainable Building Design - Two members of BED's Energy Services staff are now LEED-accredited professionals and Burlington is now home to two of Vermont's first LEED buildings, including the first LEED-certified multi-family residential development. Waterfront Housing is a 40-unit affordable housing building owned by the Burlington Community Land Trust. Working in concert with Vermont Gas Systems, BED hopes that this building will serve as a model for future multi-family projects. BED sees LEED as a great process to leverage maximum total resource benefits and to attract participants that may not be swayed by energy efficiency savings alone.

It should also be noted that staff members of VEIC\Evt also provided technical assistance with infra-red thermography services. This project was also awarded the “New Construction Design Competition Award” that was presented by EVt at the “Better Buildings By Design” conference. BED also received the 2003 Vermont Governor’s Awards for Environmental Excellence & Pollution Prevention for this project.

Variance Discussion

The RNC service achieved 192 mWh in annualized electricity savings for the year, about 13% less then projected. At $129,920, spending was 8% above budget for the year’s projected spending of $120,458.

2004 January - December Residential New Construction	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	52	46	N/AV	N/AV	513 b
# of Participants with audit/analysis (5)	52	10	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	52	10	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$110,428**	**$129,920**	**$120,458**	**$0**	**$504,808**
Administration (9)	**$38,673**	**$39,933**	**N/AV**	**$0**	**$194,740**
General (10)	$22,280	$16,062	N/AV	N/AV	$117,375
Implementation (11)	$5,690	$7,054	N/AV	N/AV	$23,357
Program Planning (12)	$436	$872	N/AV	N/AV	$6,664
Marketing (13)	$6,639	$1,083	N/AV	N/AV	$27,984
IT Development (14)	$3,628	$14,862	N/AV	N/AV	$18,489
Implementation Costs (15)	**$48,457**	**$43,414**	**N/AV**	**$0**	**$164,059**
Services to Participants (16)	$48,457	$43,414	N/AV	N/AV	$161,359
Services to Trade Allies (17)	$0	$0	N/AV	N/AV	$2,700
Incentive Costs (18)	**$23,298**	**$46,574**	**N/AV**	**$0**	**$146,009**
Incentives to Participants (19)	$23,298	$46,574	N/AV	N/AV	$146,009
Incentives to Trade Allies (20)	$0	$0	N/AV	N/AV	$0
	$0	$0	$0	0	$0
Total Participant Costs (21)	$40,048	$61,198	N/AV	N/AV	N/AV
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	$0	$2,889	N/AV	N/AV	N/AV
Total Program Costs (24)	**$150,425**	**$194,007**	**N/AV**	**$0**	**$864,302**
Total Measure Costs (25)	$150,425	$191,118	N/AV	N/AV	N/AV
Total Cost of Services (26)	$88,506	$104,612	N/AV	N/AV	N/AV
Benefits					
Annualized mWh (27)	**121**	**192**	**218**	**0**	**1,007**
Lifetime mWh (28)	1,873	2,941	N/AV	N/AV	16,600
Winter Coincident Peak kW (29)	71	63	N/AV	N/AV	283
Summer Coincident Peak kW (30)	87	27	N/AV	N/AV	205
Annualized mWh/Participant (31)	2	4	N/AV	N/AV	2
Weighted Lifetime (32)	15	15	N/AV	N/AV	16

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		5	0.99	0.82	24.84	0.00	2.92	0.00	0.00
Cooking and Laundry		15	3.14	2.66	43.41	0.19	0.13	-0.55	11.34
Hot Water:	Efficiency	5	0.00	0.00	0.00	0.00	0.00	5.59	0.00
	Fuel Switch	13	46.82	42.11	712.99	29.42	18.65	-208.70	0.00
Industrial Process Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		55	31.32	28.57	569.40	5.78	3.04	0.00	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		33	9.96	8.59	128.77	0.87	0.84	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	11	86.23	74.16	1,293.48	24.89	0.01	-401.00	0.00
Ventilation Only		36	7.37	6.25	73.74	0.82	0.82	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	1.30	1.05	32.45	0.74	0.45	124.92	0.00
	Fuel Switch	1	4.43	3.77	62.04	0.36	0.26	0.00	0.00
Total			**191.57**	**167.97**	**2,941.10**	**63.07**	**27.11**	**-479.74**	**11.34**

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Residential Existing Homes

Service Description

BED offers the same existing homes service as Efficiency Vermont (EVt) and also works closely with Vermont Gas Systems (VGS) and the Champlain Valley Weatherization Service on many of these projects. This service aims to improve the efficiency of all existing residential buildings including low-income single family, market-rate single-family and all multi-family projects.

Low-income buildings are addressed by a partnership with the state's Low-income Weatherization Assistance Program (WAP). This partnership provides electric efficiency measures (including fuel switching of electric hot water and electric space heating) to Burlington's low-income electricity consumers. Electrical efficiency measures are delivered to income-eligible electric customers at the time they receive thermal shell, space heating and water heating improvements from the Champlain Valley Weatherization Service.

This service also works closely with high usage households for energy efficiency improvements that can significantly reduce their energy bills. On-site energy audits, technical assistance, project management, cash incentives and positive cash-flow financing with loans through a partnership with the Opportunities Credit Union (formerly known as the Vermont Development Credit Union) and Chittenden Bank are all part of this service. In many cases, the high usage is driven by electric domestic hot water and\or electric resistance space heating. The opportunity to convert to natural gas or oil is available to the owners of many of these housing units, providing significant energy and cost savings.

BED also continued to offer a robust energy education service for customers that includes on-site energy audits, lending of appliance meters and custom billing history analysis. BED also continued in 2004 to provide energy efficiency information in a variety of forums. BED provided the North Avenue News newspaper with a monthly energy tip (ATTACHEMENT F). In 2004, BED staff continued to work with WCAX News by contributing a series of tips that are broadcast throughout the year. BED staff also visited several classrooms in the Burlington School District to discuss energy efficiency with faculty

and schoolchildren.

BED is also working with EVt and VGS on the Home Performance with ENERGY STAR (HPES) service. BED is supportive of the effort and will continue to work with EVT and VGS on ways that it might dovetail with the partnership process that BED and VGS currently operate for our mutual customers. BED and VGS both offer comprehensive energy audits that include financing and project management services, however, aspects of the Home Performance service may augment our efforts and attract participants. We hear from many customers that are looking to solve building performance

issues such as comfort or moisture related problems but are not primarily concerned with energy costs. The HPES process may convince these customers to take advantage of the energy saving opportunities that are available.

Program Highlights

In 2004, the retrofit of the ten-unit apartment house located at 97-103 King Street was completed through collaboration between BED, CVWS and VGS. This turn of the century building has been electrically heated (space heat and domestic hot water) for several decades and most of the tenants are on the Section 8 program and receiving emergency fuel assistance. The previous owner was unwilling to take advantage of BED's incentive and loan package but the new owner was very receptive. All electric heat and hot water was replaced with natural gas boilers. Extensive insulation and air sealing was performed along with controlled mechanical ventilation for the bathrooms. ENERGY STAR appliances including lighting were installed in the apartments and common areas. We estimate that the total energy savings per apartment will be above 50%. Early billing history analysis is confirming these estimates.

Variance Discussion

The Residential Existing Buildings service achieved 337 mWh in annualized electricity savings for the year, about 26% higher then projected. At $113,418, spending was 2% below budget for the year. BED projected spending of $115,811. BED implemented a number of projects that were audited in previous years for which owners decided to go ahead with the projects in 2004. BED and the Champlain Valley Weatherization Service were also able to complete a number of cost-effective low-income projects that included more expensive fuel switching measures.

Overall, BED is very pleased with 2004 results as we continue efforts to eliminate electric heat and electric hot water whenever possible and cost-effective.

2004 January - December Residential Existing Homes	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	117	101	N/AV	N/AV	1,687 b
# of Participants with audit/analysis (5)	120	96	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	3	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	117	96	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$121,742**	**$113,418**	**$115,811**	**$0**	**$2,254,552**
Administration (9)	**$43,937**	**$32,937**	**N/AV**	**$0**	**$530,955**
General (10)	$25,657	$14,223	N/AV	N/AV	$477,770
Implementation (11)	$14,743	$5,775	N/AV	N/AV	$32,509
Program Planning (12)	$525	$902	N/AV	N/AV	$1,893
Marketing (13)	$0	$0	N/AV	N/AV	$2,832
IT Development (14)	$3,011	$12,038	N/AV	N/AV	$15,049
Implementation Costs (15)	**$33,879**	**$34,508**	**N/AV**	**$0**	**$659,994**
Services to Participants (16)	$33,879	$34,508	N/AV	N/AV	$659,994
Services to Trade Allies (17)	$0	$0	N/AV	N/AV	$0
Incentive Costs (18)	**$43,927**	**$45,973**	**N/AV**	**$0**	**$1,063,603**
Incentives to Participants (19)	$43,927	$45,351	N/AV	N/AV	$1,050,828
Incentives to Trade Allies (20)	$0	$622	N/AV	N/AV	$12,776
	$0	$0	$0	0	$0
Total Participant Costs (21)	$114,629	$9,591	N/AV	N/AV	$3,628,856
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	$0	$4,075	N/AV	N/AV	$64,219
Total Program Costs (24)	**$236,372**	**$127,084**	**$115,811**	**$0**	**$5,947,627**
Total Measure Costs (25)	$236,372	$123,009	N/AV	N/AV	$5,883,408
Total Cost of Services (26)	$148,508	$44,100	N/AV	N/AV	$4,288,850
Benefits					
Annualized mWh (27)	**670**	**337**	**268**	**0**	**16,945**
Lifetime mWh (28)	18,064	4,878	N/AV	N/AV	337,244
Winter Coincident Peak kW (29)	75	131	N/AV	N/AV	4,679
Summer Coincident Peak kW (30)	57	61	N/AV	N/AV	204
Annualized mWh/Participant (31)	6	3	N/AV	N/AV	10
Weighted Lifetime (32)	27	14	N/AV	N/AV	20

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		6	1.85	1.60	33.06	0.00	2.83	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	10	2.15	1.84	16.44	0.37	0.27	0.00	19.20
	Fuel Switch	37	165.65	141.99	2,468.86	87.65	55.55	-596.79	0.00
Industrial Process Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		49	15.35	13.19	212.28	1.79	0.93	0.00	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		11	8.63	7.42	146.69	0.92	0.88	0.00	0.00
Space Heat:	Efficiency	7	6.44	5.77	115.98	0.77	0.00	-0.75	0.00
	Fuel Switch	21	115.48	94.80	1,581.34	38.17	0.00	-397.90	0.00
Ventilation Only		10	2.05	1.69	20.47	0.23	0.23	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	4.89	4.20	73.39	0.00	0.00	0.00	0.00
	Fuel Switch	1	14.96	12.72	209.40	0.75	0.53	-45.63	0.00
Total			**337.46**	**285.22**	**4,877.91**	**130.64**	**61.21**	**-1,041.07**	**19.20**

n/ap = not applicable

N/AV =Data/information is Not Available

a = Corrected Value

b = Current Unique Participants for the lifetime of the program are unavailable due to program restructuring, information expected to be available for 2005

Retail Products

Service Description

The Retail Products Program (RP) aims to increase sales of DOE\EPA ENERGY STAR qualified lighting products (CFL screw-in bulbs and CFL hardwired fixtures) and ENERGY STAR appliances (clothes washers, dishwashers, refrigerators, freezers, ceiling fans and room air conditioners), primarily through retail stores.

The program pursues this objective by employing a comprehensive and coordinated set of strategies. The program conducts extensive outreach to retailers including efforts to encourage Vermont lighting showrooms to increase the number and variety of energy efficient fixtures stocked and displayed. BED and Efficiency Vermont (EVt) and field representatives personally visit every participating retail store at least three times per year; larger stores are visited more frequently.

The program provides consumer rebates for Energy Star-qualified bulbs, fixtures, refrigerators, ceiling fans and clothes washers and added freezers in 2004. These incentives are intended to lower the cost of efficient products and — particularly in the case of efficient clothes washers — to enhance program-marketing efforts. Finally, the service uses a variety of other marketing and promotion efforts, a catalog, and on-line purchase options to build consumer awareness and participation in the program.

Program Highlights

Throughout 2004, the pilot effort (that began in 2003) for a manufactures and/or retailers “buy-down “ approach for lighting incentives continued. The idea is to test this concept to see if it will increase the efficiency of incentive processing (which will make participation easier for Vermonters) and reduce the administrative costs associated with processing incentive data for BED and EVt. The use of a single coupon also continued and has been well received by customers and retailer partners

Other significant program developments include:

Events: BED shared in the cost of having EVt field staff assist area vendors and retailers in the sale of efficient lighting products at special events (home shows, torchiere turn-ins, in-store promotions, etc.) throughout the year.

Quality of Lighting Products: BED and EVt through our membership in NEEP have discussed solutions for the poor quality of some lighting products that have been supported through the program. BED and EVt have been disappointed with some of the products in terms of light quality, performance and especially durability. CFL technology still has a negative perception barrier to overcome with many customers so we try hard to locate and promote products that perform well and are as durable in the home as promised in product literature. BED feels these efforts are critical to transforming the residential lighting market. BED remains hopeful that the DOE\EPA is successful in their efforts to improve the quality of ENERGY STAR labeled lighting products through the PEARL testing process.

Variance Discussion

Program savings of 433 annualized mWh was over the projection of 412 annualized mWh by about 5%. Annual expenditures were $114,616, which is 2% over the projected budget of $112,089.

2004 January - December Retail Products	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	1435	1,063	N/AV	N/AV	2,259
# of Participants with audit/analysis (5)	0	5	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	0	5	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$101,916**	**$114,616**	**$112,089**	**$0**	**$526,252**
Administration (9)	**$38,433**	**$46,516**	**N/AV**	**$0**	**$201,992**
General (10)	$24,928	$21,673	N/AV	N/AV	$123,394
Implementation (11)	$6,217	$13,073	N/AV	N/AV	$20,652
Program Planning (12)	$696	$251	N/AV	N/AV	$9,443
Marketing (13)	$5,253	$3,433	N/AV	N/AV	$38,827
IT Development (14)	$1,340	$8,086	n/ap	n/ap	$9,426
Implementation Costs (15)	**$34,383**	**$29,025**	**N/AV**	**$0**	**$104,606**
Services to Participants (16)	$34,383	$29,025	N/AV	N/AV	$102,325
Services to Trade Allies (17)	$0	$0	n/ap	n/ap	$2,281
Incentive Costs (18)	**$29,100**	**$39,075**	**N/AV**	**$0**	**$219,655**
Incentives to Participants (19)	$29,100	$39,075	N/AV	N/AV	$219,655
Incentives to Trade Allies (20)	$0	$0	n/ap	n/ap	$0
Total Participant Costs (21)	$136,876	$60,777	N/AV	N/AV	$454,279
Total Third Party Costs (22)	n/ap	n/ap	n/ap	n/ap	N/AV
Evaluation Costs (23)	$0	$8,175	N/AV	N/AV	$15,457
Total Program Costs (24)	**$238,792**	**$183,568**	**$112,089**	**$0**	**$995,988**
Total Measure Costs (25)	$238,792	$175,393	N/AV	N/AV	$980,531
Total Cost of Services (26)	$171,259	$89,802	N/AV	N/AV	$558,885
Benefits					
Annualized mWh (27)	**320**	**433**	**412**	**0**	**2,210**
Lifetime mWh (28)	3,162	3,388	N/AV	N/AV	22,338
Winter Coincident Peak kW (29)	70	90	N/AV	N/AV	387
Summer Coincident Peak kW (30)	45	72	N/AV	N/AV	255
Annualized mWh/Participant (31)	0	0	N/AV	N/AV	1
Weighted Lifetime (32)	10	8	N/AV	N/AV	10

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		184	6.66	8.59	86.58	0.00	10.42	0.00	0.00
Cooking and Laundry		180	45.54	40.73	637.48	11.57	8.60	152.04	1,067.90
Hot Water:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		762	377.81	340.48	2,606.73	78.02	52.79	-82.26	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		43	2.84	3.62	48.21	0.51	0.51	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		3	0.58	0.55	8.65	0.02	0.02	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**433.43**	**393.97**	**3,387.66**	**90.11**	**72.33**	**69.78**	**1,067.90**

n/ap = not applicable

N/AV =Data/information is Not Available

Summary of BED
Non - EEU Services

2004 January - December BED Programs	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	224	204	N/AV	N/AV	14,775 b
# of Participants with audit/analysis (5)	22	24	N/AV	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	22	24	N/AV	N/AV	N/AV
Program Costs					
BED Costs (8)	**$68,153**	**$66,585**	**$43,051**	**$45,000**	**$1,504,992**
Administration (9)	**$75,903**	**$60,512**	**N/AV**	**$0**	**$576,001**
General (10)	$34,337	$44,340	N/AV	N/AV	$518,263
Implementation (11)	$39,089	$8,833	N/AV	N/AV	$47,922
Program Planning (12)	$180	$676	N/AV	N/AV	$856
Marketing (13)	$2,297	$1,604	N/AV	N/AV	$3,901
IT Development (14)	$0	$5,059	N/AV	N/AV	$5,059
Implementation Costs (15)	**$14,248**	**$6,073**	**N/AV**	**$0**	**$482,877**
Services to Participants (16)	$14,248	$6,073	N/AV	N/AV	$482,877
Services to Trade Allies (17)	$0	$0	N/AV	N/AV	$0
Incentive Costs (18)	**-$21,998**	**$0**	**N/AV**	**$0**	**$446,114**
Incentives to Participants (19)	-$21,998	$0	N/AV	N/AV	$446,114
Incentives to Trade Allies (20)	$0	$0	N/AV	N/AV	$0
	$0	$0	$0	0	$0
Total Participant Costs (21)	$21,998	$0	N/AV	N/AV	$480,835
Total Third Party Costs (22)	N/AV	N/AV	N/AV	N/AV	N/AV
Evaluation Costs (23)	$0	$0	N/AV	N/AV	$69,002
Total Program Costs (24)	**$90,151**	**$66,585**	**$43,051**	**$45,000**	**$2,054,830**
Total Measure Costs (25)	$90,151	$66,585	N/AV	N/AV	$1,985,828
Total Cost of Services (26)	$36,246	$6,073	N/AV	N/AV	$963,712
Benefits					
Annualized mWh (27)	**368**	**341**	**303**	**310**	**7,344**
Lifetime mWh (28)	1,343	1,277	N/AV	N/AV	36,605
Winter Coincident Peak kW (29)	25	63	N/AV	N/AV	955
Summer Coincident Peak kW (30)	19	78	N/AV	N/AV	765
Annualized mWh/Participant (31)	2	2	N/AV	N/AV	0
Weighted Lifetime (32)	4	4	N/AV	N/AV	5

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	34	11.49	10.90	89.76	1.40	1.05	0.00	122.60
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		180	329.85	299.51	1,187.03	62.09	77.33	-257.71	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**341.33**	**310.42**	**1,276.79**	**63.49**	**78.38**	**-257.71**	**122.60**

n/ap = not applicable

N/AV =Data/information is Not Available

a = Corrected Value

b = Current Unique Participants for the lifetime of the program are unavailable due to program restructuring, information expected to be available for 2005

Commercial Smartlight Program

***Program description**:*

The Commercial Smartlight Program allows commercial customers to lease any style compact fluorescent lamp (CFL) for $0.35/lamp per month. Each bulb lease is tracked and linked to our customer billing system. After 36 months, the lease fee stops.

The primary method of marketing the commercial Smartlight program is through the Business Existing Facilities program and through daily Customer and Energy Service area customer contacts. In-house customer service and cashier personnel are trained to handle walk-in customers interested in the program. Energy Services Specialists and the Commercial Account Representative identify potential applications and recommend the appropriate lamp. The program is targeted primarily to small commercial customers who do not normally work with lighting suppliers. The program design gives the customer “no money down” access to energy efficient lighting products that are sometimes difficult and costly to obtain.

BED features Smartlight program information on its Web site (in both the home and business sections) and has included a product order form on the site, which customers can use to mail or fax their Smartlight orders in to BED.

Program Highlights:

A large Smartlight display is set up in the BED lobby. The working display exhibits the products and includes a wattmeter to visualize energy savings. The program is continually expanded by offering a larger, more varied lighting product line and to accommodate more installations. BED began incorporating some commercial application lamps into this display, and a surprising number of commercial users visit BED to inspect it. BED staff uses the display to assist customers in selecting the correct product for their needs. The improved CFL technology has resulted in greater acceptance in retail stores and restaurants. The Commercial Smartlight program continues to be very successful, reaching a high level of

maturity and customer acceptance. Recently, BED has begun deploying a greater number of the new dimmable CFLs in commercial customer locations.

***Variance Discussion**:*

Program results for 2004 matched projections in most areas. The program captured 308 mWh/yr in energy savings, provided services to 72 locations and delivered 1,047 mWh in lifetime savings. Program results for 2004 showed a greater cost than expected at $45,990. Overall, the program was over the budgeted $26,277 by 75%.

The reported program cost is an expense and does not account for lease income. Commercial lease income was approximately $12,000 in 2004. Accounting for this would bring the net program cost closer to projections, at $33,990 ($110/mWh).

The 308 mWh/yr savings exceeded the projected amount of 265 mWh/yr by 16%. Participation virtually matched projections at 72 locations. The delivered savings were acquired at the relatively low cost of $149/mWh.

2004 January - December Commercial Smartlight	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	75	72	70	75	428
# of Participants with audit/analysis (5)	0	0	n/ap	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	0	n/ap	N/AV	N/AV
# of audits/analyses with installations (7)	0	0	n/ap	N/AV	N/AV
Program Costs					
BED Costs (8)	**$46,320**	**$45,990**	**$26,277**	**$45,000**	**$241,757**
Administration (9)	**$51,787**	**$42,660**	**N/AV**	**$0**	**$121,344**
General (10)	$21,951	$30,872	N/AV	N/AV	$79,720
Implementation (11)	$28,723	$6,429	N/AV	N/AV	$35,152
Program Planning (12)	$121	$476	N/AV	N/AV	$597
Marketing (13)	$992	$1,117	N/AV	N/AV	$2,109
IT Development (14)	$0	$3,766	n/ap	n/ap	$3,766
Implementation Costs (15)	**$8,662**	**$3,330**	**N/AV**	**$0**	**$84,073**
Services to Participants (16)	$8,662	$3,330	N/AV	N/AV	$84,073
Services to Trade Allies (17)	$0	$0	n/ap	n/ap	$0
Incentive Costs (18)	**-$14,129**	**$0**	**N/AV**	**$0**	**$36,340**
Incentives to Participants (19)	-$14,129	$0	N/AV	N/AV	$36,340
Incentives to Trade Allies (20)	$0	$0	n/ap	n/ap	$0
Total Participant Costs (21)	$14,129	$0	N/AV	N/AV	$142,058
Total Third Party Costs (22)	$0	n/ap	n/ap	n/ap	N/AV
Evaluation Costs (23)	$0	$0	N/AV	N/AV	$188
Total Program Costs (24)	**$60,449**	**$45,990**	**$26,277**	**$45,000**	**$384,003**
Total Measure Costs (25)	$60,449	$45,990	N/AV	N/AV	$383,815
Total Cost of Services (26)	$22,791	$3,330	N/AV	N/AV	$226,131
Benefits					
Annualized mWh (27)	**326**	**308**	**265**	**310**	**3,306**
Lifetime mWh (28)	1,085	1,047	N/AV	N/AV	10,231
Winter Coincident Peak kW (29)	17	57	N/AV	N/AV	393
Summer Coincident Peak kW (30)	9	75	N/AV	N/AV	678
Annualized mWh/Participant (31)	4	4	4	4	8
Weighted Lifetime (32)	3	3	N/AV	N/AV	3

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		72	307.99	279.67	1,047.16	57.44	74.86	-257.71	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**307.99**	**279.67**	**1,047.16**	**57.44**	**74.86**	**-257.71**	**0.00**

n/ap = not applicable

N/AV =Data/information is Not Available

Neighborsave Service

***Program description**:*

The Neighbor$ave program is designed to deliver energy saving measures and information directly to Burlington Electric Department's residential consumers that use electric domestic hot water. During a 30 to 40 minute visit, a utility employee installs energy and water saving devices and compact fluorescent light bulbs, using the Smartlight lease mechanism.

Installers also briefly survey occupants about energy usage, lighting habits and appliance information. Staff works with customers to identify and install the right compact fluorescent product in the appropriate locations using a "bag of tricks" to optimize the number of lights installed. Electric water heaters are wrapped and hot water pipes are insulated. The Neighbor$ave visit concludes with a customized package of energy efficiency educational material. Questions about energy efficiency are answered on the spot or customers are referred to other energy efficiency services when appropriate.

Program Highlights:

Neighbor$ave has been operating for over thirteen years, and BED is proud of this award-winning successful program design which achieves cost-effective electrical savings in both the high-use and the non-high-use residential segment. BED's original long-term target market was 8,400 customers. As of December 31, 2004 BED has completed 7,436 unique customer location visits reaching about 89% of its originally stated goal. Evolving CFL technology continues to be introduced as program measures. BED continues to offer dimmable CFLs, and a CFL replacement for halogen torchiere floor lamps.

By the end of 2004, BED had reached almost 46% of its total residential customers with this program. Customer requests are primarily generated via a letter sent to new non-Neighbor$ave accounts (locations that have not received a visit from BED staff) after account turnover.

BED now promotes Neighbor$ave to customers with electrical domestic water heating (DHW). BED's 2003 load survey estimates that less than 22% of residential customers have electrical domestic water heating and since the 2003 survey we have converted 119 tanks to natural gas. Encouraging participation in this program can prove to be quite a challenge with an annual turnover rate of 40% and with 35% of our residential customers using less than 300 kilowatt-hours a month. It can also be difficult to convince these "short-time" customers and those who already have low bills of the importance of having energy-saving measures installed. Also, over 60% of residential customers are renters and typically are not as inclined to participate for a variety of reasons. Nevertheless, BED continues to use its traditional methods for communication (bill messages, newsletters, phone message loop, community events, etc.) to maintain program awareness.

Variance Discussion:

Savings of 8 mWh were projected. The program achieved 11.5 mWh.

2004 January - December Residential Retrofit-Neighborsave	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	31	24	N/AV	N/AV	7,426 b
# of Participants with audit/analysis (5)	22	24	N/AV	N/AV	7,199
# of audits/analyses w/ pending action (6)	0	0	N/AV	N/AV	N/AV
# of audits/analyses with installations (7)	22	24	N/AV	N/AV	7,199
Program Costs					
BED Costs (8)	**$10,159**	**$9,340**	**$5,000**	**$0**	**$925,163**
Administration (9)	**$7,373**	**$7,412**	**N/AV**	**$0**	**$292,376**
General (10)	$5,289	$5,912	N/AV	N/AV	$288,792
Implementation (11)	$1,080	$831	N/AV	N/AV	$1,910
Program Planning (12)	$20	$84	N/AV	N/AV	$104
Marketing (13)	$984	$214	N/AV	N/AV	$1,198
IT Development (14)	$0	$371	n/ap	n/ap	$371
Implementation Costs (15)	**$2,786**	**$1,928**	**N/AV**	**$0**	**$363,837**
Services to Participants (16)	$2,786	$1,928	N/AV	N/AV	$363,837
Services to Trade Allies (17)	$0	$0	n/ap	n/ap	$0
Incentive Costs (18)	**$0**	**$0**	**N/AV**	**$0**	**$268,950**
Incentives to Participants (19)	$0	$0	N/AV	N/AV	$268,950
Incentives to Trade Allies (20)	$0	$0	n/ap	n/ap	$0
Total Participant Costs (21)	$0	$0	N/AV	N/AV	$165,372
Total Third Party Costs (22)	n/ap	n/ap	n/ap	n/ap	N/AV
Evaluation Costs (23)	$0	$0	N/AV	N/AV	$37,522
Total Program Costs (24)	**$10,159**	**$9,340**	**$5,000**	**$0**	**$1,128,057**
Total Measure Costs (25)	$10,159	$9,340	N/AV	N/AV	$1,090,535
Total Cost of Services (26)	$2,786	$1,928	N/AV	N/AV	$529,209
Benefits					
Annualized mWh (27)	**12**	**11**	**8**	**0**	**2,869**
Lifetime mWh (28)	85	90	N/AV	N/AV	20,731
Winter Coincident Peak kW (29)	1	1	N/AV	N/AV	508
Summer Coincident Peak kW (30)	1	1	N/AV	N/AV	51
Annualized mWh/Participant (31)	0	0	N/AV	N/AV	0
Weighted Lifetime (32)	7	8	N/AV	N/AV	7

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	34	11.49	10.90	89.76	1.40	1.05	0.00	122.60
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**11.49**	**10.90**	**89.76**	**1.40**	**1.05**	**0.00**	**122.60**

n/ap = not applicable

N/AV =Data/information is Not Available

a = Corrected Value

b = Current Unique Participants for the lifetime of the program are unavailable due to program restructuring, information expected to be available for 2005

Residential Smartlight Service

***Program description**:*

The oldest and best-established of BED's energy efficiency offerings, this very simple program promotes the use of compact fluorescent light bulbs. Customers can lease any of BED's compact fluorescent products for $.20/bulb per month. Tracking software is linked to our customer billing system. After 60 months, the lease fee stops.

Program Highlights:

In 2004, the program met 73% of savings projections. Having both the Smartlight lease and the Efficient Products program instant rebate options has worked well in Burlington as both programs continue to have strong participation. BED is continually expanding its Smartlight program by offering a larger, more varied lighting product line, which will accommodate more installations. Next generation products are incorporated on an ongoing basis as existing inventory is exhausted. We aggressively promote high performance products that offer high-quality electronic ballasts, a high color-rendering index and appropriate color temperatures. We also try to stay with manufacturers that have a proven track record for durability. BED continues to offer dimmable CFLs, and a dimmable CFL replacement for halogen torchiere floor lamps. All these products are ENERGY STAR labeled.

A large Smartlight display that includes a working watt-meter is located in BED's lobby. BED staff uses the display to acquaint customers with the variety of bulbs available and help them select the correct product for their needs. Because BED's Pine Street office is a public building and serves as a meeting center and polling place throughout the year, this display is visible to multiple audiences. BED's in-house customer service and cashier personnel are trained to handle walk-in and drive-up requests for Smartlight service.

BED continues to direct-market Smartlight (via letters) to turnover accounts where leases have ended. BED also has developed a letter directed at customers who have had bulbs for five years encouraging them to visit BED's Pine Street

office and pick up replacement bulbs.

BED continues to deliver bulbs to the elderly and disabled through its field personnel. In addition, BED continues to promote the Smartlight program via its traditional communication methods (newsletter, bill messages, phone message loop, etc.). BED features Smartlight Program information on its Web site (in both the home and business sections) and has included a product order form on the site, which customers can mail or fax in. BED also developed a Smartlight ad featuring one of its customers for use in various community publications.

When available, BED is selling *used* bulbs to customers at a reduced cost of $3 per bulb. A one-year guarantee is given to the customer. This has been an effective mechanism to minimize the inventory of used bulbs generated from customers returning bulbs that are in good working order. It is interesting to note that our supply of used CFL's has declined dramatically over the years. We believe that this is due mostly to the increasing quality in the technology; ie, people keep them for their entire lifetime.

As the market for compact fluorescent lamps grows and as products change, BED continues to see steady growth in consumer awareness. Growth in the Smartlight program is projected in future years as bulbs burn out that were distributed initially through the Neighbor$ave program when it was operated as a direct-installation program. This activity created a "bubble" of bulbs of a similar age, now reaching the end of their useful lives. As this occurs, BED expects customers will pick up replacement bulbs at BED's Pine Street offices and participate through the Smartlight program and/or the instant rebate coupon service. BED sends customers that have had bulbs for 5 years a letter encouraging them to do so.

It is worth noting the slow but steady maturity of CFL technology in today's market place. Lamps that were once fragile, expensive, novel, oversized that gave off funny greenish light are today sturdy, compact, and provide excellent light quality. Furthermore, prices are reaching a point at which consumers no longer hesitate to make the investment. Though it's still quite a while off (and some poor quality CFL bulbs are still available), the day when this technology has completely transformed the market is foreseeable. BED is proud of the small role the Smartlight program has played in helping seed

this market transformation.

Variance Discussion:

In 2004, savings of 30 mWh were projected and 22 mWh were achieved. When combined with the Retail Products program, savings exceeded projections and having both options available to customers covers the market well.

2004 January - December Residential Smartlight	Actual 2003	Actual 2004	Projected 2004 (2)	Projected 2005	Actual Program to Date (3)
# of Participants with installations (4)	118	108	N/AV	N/AV	6,921
# of Participants with audit/analysis (5)	0	0	n/ap	N/AV	N/AV
# of audits/analyses w/ pending action (6)	0	0	n/ap	N/AV	N/AV
# of audits/analyses with installations (7)	0	0	n/ap	N/AV	N/AV
Program Costs					
BED Costs (8)	**$11,674**	**$11,255**	**$11,774**	**$0**	**$338,072**
Administration (9)	**$16,743**	**$10,440**	**N/AV**	**$0**	**$162,281**
General (10)	$7,097	$7,555	N/AV	N/AV	$149,750
Implementation (11)	$9,286	$1,573	N/AV	N/AV	$10,859
Program Planning (12)	$39	$116	N/AV	N/AV	$156
Marketing (13)	$321	$273	N/AV	N/AV	$594
IT Development (14)	$0	$922	n/ap	n/ap	$922
Implementation Costs (15)	**$2,800**	**$815**	**N/AV**	**$0**	**$34,967**
Services to Participants (16)	$2,800	$815	N/AV	N/AV	$34,967
Services to Trade Allies (17)	$0	$0	n/ap	n/ap	$0
Incentive Costs (18)	**-$7,869**	**$0**	**N/AV**	**$0**	**$140,824**
Incentives to Participants (19)	-$7,869	$0	N/AV	N/AV	$140,824
Incentives to Trade Allies (20)	$0	$0	n/ap	n/ap	$0
Total Participant Costs (21)	$7,869	$0	N/AV	N/AV	$173,405
Total Third Party Costs (22)	n/ap	n/ap	n/ap	n/ap	N/AV
Evaluation Costs (23)	$0	$0	N/AV	N/AV	$31,292
Total Program Costs (24)	**$19,543**	**$11,255**	**$11,774**	**$0**	**$542,769**
Total Measure Costs (25)	$19,543	$11,255	N/AV	N/AV	$511,477
Total Cost of Services (26)	$10,669	$815	N/AV	N/AV	$208,372
Benefits					
Annualized mWh (27)	**30**	**22**	**30**	**0**	**1,169**
Lifetime mWh (28)	173	140	N/AV	N/AV	5,643
Winter Coincident Peak kW (29)	7	5	N/AV	N/AV	54
Summer Coincident Peak kW (30)	9	2	N/AV	N/AV	36
Annualized mWh/Participant (31)	0	0	N/AV	N/AV	0
Weighted Lifetime (32)	6	6	N/AV	N/AV	5

End Use		# of Participants (33)	Utility mWh Saved (35)	Customer mWh Saved (36)	Annual Lifetime mWh (34)	Utility Winter cp-kW Saved (37)	Utility Summer cp-kW Saved (38)	Other fuel MMBtu Saved (39)	Water ccf Saved Saved (40)
Air Conditioning Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cooking and Laundry		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Water:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Process Efficiency		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lighting		108	21.86	19.84	139.87	4.66	2.47	0.00	0.00
Motors		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Refrigeration		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Space Heat:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ventilation Only		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Conservation		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other:	Efficiency	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Fuel Switch	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total			**21.86**	**19.84**	**139.87**	**4.66**	**2.47**	**0.00**	**0.00**

n/ap = not applicable

N/AV =Data/information is Not Available

Footnotes to the Program Tables








(1) Verified activity for the current reporting year. For savings this figure will be the estimated savings for measures actually implemented and verified for the current report period. Savings should be reported in MWH, at generation and net of all approved adjustment factors, except as otherwise noted.

(2) Estimated portion of the three-year savings and costs projected for the current report year. This footnote should identify the source of the projections. Projections for categories footnoted (4) to (7), (21) to (26) and (28) to (32) will be provided if available.

(3) Program to date activity. For participation [(4) to (7)], the program-to-date column should count each customer (premise) only once, regardless of participation in previous years. The executive summary should count each customer (premise) only once, even if a customer was served by more than one program.

(4) Number of customers with verified installations during the current report period.
Customer is defined as a unique premise as defined by the utility, with one exception. For master-metered, multifamily buildings, customer is defined as a dwelling unit.

(5) Number of customers who had analyses or audits completed during the current report period.

(6) Number of customers who had analyses or audits during the current report period and are actively involved in the process of selecting and installing efficiency measures, but have not actually completed any installations. The number of customers reported in this category should be a subset of the customers counted in (5) above. The program to date column should reflect activity related to all participants with analyses/audits, regardless of when the analysis was conducted.

(7) Number of customers who had analyses or audits during the current report period and have completed one or more installations during the current report period. The number of customers reported in this category should be a subset of the customers counted in (5) above. The program to date column should reflect activity related to all participants with analyses/audits, regardless of when the analysis was conducted.

(8) Total costs incurred by Burlington Electric Department during the current report period. All costs in nominal dollars, (9) + (15) + (18).

(9) Subtotal of all administrative costs detailed in the categories below, (10) + (11) + (12) + (13) + (14).

(10) Costs include general management, budgeting, financial management and legal costs directly associated with program implementation (such as contract review).

(11) Implementation management and administrative costs include costs related to business development and customer service, data management, and other program administrative costs directly related to implementation.

(12) Costs related to program design and planning, program screening and other similar functions.

(13) Costs related to marketing and outreach.

(14) IT development and maintenance costs do not need to be broken out by program, i.e., this category may be filled in only on the executive summary page.

(15) Subtotal reflecting total implementation costs, (16) + (17).

(16) Costs related to conducting audits or analyses, preparing the package of efficiency measures, contract management and post project follow up.

(17) Costs related to educational or other support services provided to entities other than individual program participants, such as trade allies, manufacturers, wholesalers, builders, and architects.

(18) Subtotal reflecting total incentive costs, (19) + (20).

(19) Direct payments made to participants to defray the costs of specific efficiency measures. If a program employs a shared savings mechanism or loan system, this category should include the utility share of the measure and carrying costs projected over the payment period, net of all projected participant payments.

(20) Incentives paid to manufacturers, wholesalers, builders, or other stakeholders.

(21) Total costs incurred by participants related to BED activities during the current report period. This category includes the participant contribution to the capital costs of installed measures and to specific DSM-related services, such as technical assistance or energy ratings.

(22) Total costs incurred by third parties, i.e., entities other than BED and participants, directly related to BED DSM activities during the current report period. This category includes contributions by third parties to the capital costs of installed measures and to

specific DSM-related services, such as technical assistance or energy ratings. Note: The costs reflected in footnotes (15), (18), (21), (22) are equal to the costs in footnotes (25) and (26), i.e., implementation (services) costs plus BED incentives plus participant costs plus third party costs will be equal to total cost of services plus total cost of measures.

(23) Evaluation costs, excluding tracking and reporting expenditures.

(24) Total program costs, (8) + (21) + (22) + (23).

(25) Total capital expenditures incurred by the installation of DSM measures, including all BED, participant and third party costs.

(26) Total expenditures associated with the delivery of direct services to participants and trade allies, including all BED, participant and third party costs.

(27) Annualized MWH savings at generation and net of all approved adjustment factors (e.g., free riders, spill over) for measures installed and verified during the current report period.

(28) The lifetime estimated MWH savings for measures installed and verified during the current reporting year, at generation and net of all approved factors. (Estimated annualized savings times the life of the measure).

(29) Estimated impact of measures at time of winter system peak, at generation, net of adjustment factors.

(30) Estimated impact of measures at time of summer system peak, at generation, net of adjustment factors.

(31) Annualized MWH savings per participant, net at generation, i.e., (27) / (4).

(32) Average lifetime, in years, of measures in the program weighted by savings, i.e., (28)/(27).

(33) Number of customers with verified installations of measures within the end use, utility or county grouping.

(34) The total annualized MWH saved, at generation, net of adjustment factors, should add up to the savings reported in the line item footnoted as (27).

(35) The total lifetime MWH saved, at generation, net of adjustment factors, should add up to the savings reported in the line item footnoted as (28).

(36) The total annualized MWH saved, *gross at the customer meter*.

(37) The total winter coincident KW, at generation, net of adjustment factors, should add up to the savings reported in the line item footnoted as (29).

(38) The total winter coincident KW, at generation, net of adjustment factors, should add up to the savings reported in the line item footnoted as (30).

(39) Total MMBtu estimated to be saved (positive) or used (negative) for alternative fuels as a result of measures installed in the end use.

(40) Total water saved (positive) or used (negative) due to measures installed in the end use.

(41) Total incentive costs for measures installed, should add up to the savings reported in the line item footnoted as (18).

(42) Total participant costs for measures installed, should add up to the savings reported in the line item footnoted as (21).

Attachments

A. Design Review Guide

B. Energy Solutions for Your Business Brochure

C. Development Caseload Update

D. Sample Ability to Serve Letter

E. Sample Compliance Memo for Guidelines for Energy Efficient Construction

F. North Avenue News and WKDR Radio Energy Tips

G. Energy Solutions for Your Home Brochure

MEMORANDUM

To: John Rasys, Building Inspector, Dept. of Public Works, City of Burlington
From: Chris Burns, Director of Residential Services
Date: February 7, 2002
Subject: **3 Cathedral Square Additions and Alterations.**

The Energy Services Area of the Burlington Electric Department (BED) has reviewed the plans and specifications referenced below for the subject project and found that the project satisfies the requirements of the Guidelines for Energy Efficient Construction.

The review is based on project documents referenced below. Additional modifications to the design and/or project documents subject to the Guidelines for Energy Efficient Construction will require approval by this office.

Project Plans: 3 Cathedral Square Additions and Alterations, 12-5-2001; **NOTES: 1. Truex Cullins & Partners Architects (Sandra Sila and\or Anne Connell) will provide BED with the specific window and glass door U-values and the solar heat gain coefficient numbers. For this project the "center of glass" U-value for the window and door glazing needs to be .29 or less and the solar heat gain coefficient .64. The glazing description in the plans indicates that these requirements have been met but the actual numbers are not provided.**

2. BED also asked Truex Cullins & Partners Architects to complete and return the Compliance Certificate Checklist for this project. The checklist is still in draft form but it is a useful tool for ensuring that no issues have been missed and that the specifications meet the Guidelines for Energy Efficient Construction.

Specifications dated: 12-5-2001

Project Contact Name: For the Owner: Cathedral Square Corporation, Joanna Valone,
Phone: 802-651-1889

For the Architect: Anne Connell, Truex Cullins & Partners Architects
Phone: 802-658-2775

Comments/Non-compliant components and suggested changes:

The building envelope, lighting and HVAC equipment all meet or exceed the Guidelines. Therefore, I have no suggested changes to make to the specifications or plans but do recommend the following:

1. Air Conditioning: Supply BED with the exact size (tons) of the two air conditioning units. BED will offer a cash incentive to install higher efficiency units. The incentive amount is based on the size of the equipment.

2. Heat Recovery System and Boiler: We strongly recommend participation in Vermont Gas System's energy efficiency program where incentives may be given for higher efficiency equipment. Bob Hereford, of VGS, can be reached at 863-4511.

BED Reviewer: (Print): _____

(Sign): _____ Date:_____

CC: Anne Connell and Sandra Sila

Call us today to find out about…

Free Consulting and Audits

- BED energy efficiency experts will provide free consulting on how to get the best results for any project that improves energy efficiency (construction, equipment purchases or retrofit). You'll be provided with the estimated cost of the project, the estimated savings, and other benefits so that you can make an informed decision.

Financing

- For qualifying efficiency projects, BED will arrange financing so that businesses get a positive cash flow right from the start (with no capital outlay).

Free Equipment Monitoring

- Many businesses have benefited greatly from the equipment monitoring that BED provides to commercial customers. Find out how much energy the chiller, the water heater, the reach-in cooler, etc., really use before making those important decisions.

Incentives

- Many projects qualify for financial incentives to help you complete the project and reduce the payback period.

Let us put our energy to work for you!

Burlington Electric Department
585 Pine Street
Burlington, VT 05401-4891

Energy Solutions for your Business

Burlington Electric Department
585 Pine Street
Burlington, VT 05401-4891
802-658-0300
www.burlingtonelectric.com

One-Stop Shopping at BED

BED helps commercial and industrial customers reduce electricity costs and protect the environment. Customers appreciate BED's one-stop shopping approach that reduces hassles and assures quality for business owners.

The BED staff coordinates it all—from consulting to energy auditing to contract management to financing.

BED will work closely with you to determine which efficiency measures make the most sense for your business, produce the biggest savings and provide the best positive cash flow.

Many businesses throughout Burlington are reaping the benefits of the energy services provided by the BED staff. Not only are they saving money each month on their electric bill, they also are improving the work environment. With better lighting and better ventilation, employees are more productive. They also are helping to lower the city's future energy costs. Energy efficiency keeps dollars recirculating in the local economy, rather than being exported for power purchases.

Matt Lillis, director of BED's Commercial Energy Services, presents a rebate check to Jim Goldsmith of Fletcher Allen Health Care for the energy efficiency work they included in the Renaissance Project. The two are standing in front of one of the three chillers that provide cooling for Fletcher Allen Health Care

So why waste energy when you can be saving money for your business, providing more comfortable space for your staff and helping to protect the environment by reducing your energy usage?

Give us a call at 802-658-0300 and ask for "Energy Services" or send us an email at energyservices@burlingtonelectric.com. Find out how BED's programs can help your business succeed.

Services for Your Business

Existing Business Retrofit and Equipment Replacement.

When retrofitting and upgrading, contact BED for assistance with equipment selection, custom cost/benefit analysis, equipment monitoring, incentives and financing.

Business New Construction.

Smart business owners contact BED before designing new projects. Get help with the overall building design, analysis of efficiency upgrades, building computer modeling, financial incentives, permitting, and green building design.

Commercial SmartLight

Many business owners in Burlington have cut down greatly on their lighting bill by using BED's Smartlight program. Commercial customers can lease compact fluorescent bulbs from BED for 35 cents each month for three years. BED provides technical assistance with lamp selection and energy savings.

Load Response Program

Large businesses can receive bill credits for lowering their usage of electricity during times when electricity prices soar, usually during very hot periods. (A minimum reduction of 50 kW is required to participate.)

With the help of BED Energy Services, your business will be cleaner, more efficient and more competitive, and you'll be contributing to a cleaner, lower-cost power supply for the entire community.

Department of Planning and Zoning
149Church Street, City Hall
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195
(FAX)
(802) 865-7142
(TTY)

Ken Lerner, Interim Director
David White, AICP, Comprehensive Planner
Jay Appleton, GIS Manager/Planner
Scott Gustin, Senior Planner
Mary O'Neil, Associate Planner
Kathy Parrott, Zoning Clerk
Elsie Tillotson, Department Secretary

TO: Mayor Peter Clavelle

FROM: Ken Lerner, Interim Director of Planning & Zoning

DATE: January 25, 2005

SUBJ: **Development Caseload Update**

PROJECTS UNDER CONSTRUCTION

University Heights	**UVM**	**Dormitories –University Heights-825 beds (10/28/03)**	**$35,000,000**
111 Colchester Ave	**FAHC**	**17,000 sq ft mental health facility (1/14/03)**	**10,084,000**
16 So. Winooski	RM House	4800 sf Expansion of Ronald McDonald House	1,000,000
272 Church Street	Converse	Converse Home Expansion (40 units assisted living)	6,200,000
South Cove Road	Westlake	8-lot subdivision (10/21/03)	NA
187 South Winooski	Natale	8 unit residential-Hood property (9/25/03)	1,100,000
184 So. Prospect	UVM	Adaptive Reuse-Carriage House	473,000
Spear Street	UVM	Gutterson Garage (7/1/03)	3,000,000
1162 North Ave	Blondin	5 dwelling units	250,000
Mini Storage-Flynn	Lorentz	600 storage units (4/27/99)	1,000,000
128 Lakeside Ave	Gilbane	15,000 sf expansion (8/28/03)	675,000
1044 North Avenue	Moore	9 dwelling units (5/6//03)	400,000
300 Lake Street	BCLT	40 dwelling units (8/29/02)	4,800,000
Lake & College	MS Landing	Office-retail –theater (1/28/03)	9,000,000
South Willard St	Champlain	Student Life Complex (5/28/02)	10,000,000
Maple Street	Champlain	New Business School (12/14/01)	4,200,000
Ambulatory Care Ctr	FAHC	350,000 sq ft expansion	228,317,000
		102 dwelling units, 8 lots, 825 dorm beds	**$280,526,000**

PROJECTS APPROVED

Carrigan Drive	**UVM**	**Addition to Marsh Life Science Building (9/27/04)**	**$3,750,000**
Main Street	**UVM**	**New Student Center-Gateway Commons (11/8/04)**	**51,300,000**
*45 Cherry St	City/Retrov.	13-unit "Loft" housing/office (8/30/04)	2,000,000
*67 Cherry St	City(DPW)	Lakeview Garage 278 car expansion; 2 decks (8/30/04)	3,000,000
*40 Battery St	City/Retrov.	32-unit condominiums (8/30/04)	3,500,000
*25 Cherry St	City/Canning	127-room hotel/147 car garage (8/30/04)	6,700,000
*114 College Street	ICV	50 dwelling units, 3 parking levels, + commercial (9/29/04)	2,948,000
*131 Battery	Cornell	34,000 sq. ft. office building/housing (12/21/04	3,900,000
0 Derway Drive	Larkin	Claire Point Building D (18 units) (6/7/04)	1,026,000
*315 Shelburne	Wesco	Commercial renovation/canopy (10/28/03)	200,000
*76 Glen Road	Lund	Lund home expansion-6400 sq ft (9/25/03)	2,488,000
*102 Archibald St	Eton	27 units; Burgess Electric(9/15/03)	1,350,000
235-245 East Ave	Hope Lodge	16 room residential facility (8/28/03)	1,500,000
Redstone Campus	UVM	Dorm Apartments-200 beds (7/1/03)	12,000,000
204 South Union	Lankin	3 dwelling units plus renovation (4/16/02)	500,000
Eco Park	City/Intervale	Industrial/incubator space (2/5/02)	3,600,000
Venus Avenue	Habitat	8-unit PRD (2/20/01)	610,000
		151 dwelling units, 127 hotel rooms, 216 beds	**$100,372,000**

*Projects Under Appeal – 215 dwelling units
(Projects in **bold** indicate change in status from prior report)

In Review Process:

81 So. Williams	**Pomerleau**	**27 units (Sketch Plan 2/15/05)**	**$3,000,000**
304 Maple St.	**Champ. Col.**	**50 bed dorm and 19 bed renovation (DAB 2/8/05)**	**3,700,000**
1127 North Avenue	**Hauke**	**7,200 sq. Post Office**	**300,000**
207 Riverside	**Huber**	**Laundromat & 2 dwelling units**	**380,000**
354 Manhattan Dr.	Rouille	15-unit PRD-**final** plat	550,000
		44 dwelling units; 69 dorm beds	**$7,930,000**

Future (Next 12 months):

Scarlet Circle	**Von Turkovich**	**148 units**
237 North Avenue	**Hartland**	**23 units & 38+/- seat café**
57 So. Williams	**Lubavitch**	**50 units**
Main Street	**UVM**	**Aiken Addition**
237 Riverside	DeMoll	18 dwelling units PRD
15 Industrial Pkwy	CCTA	Bus Barn Addition
Ethan Allen Pkwy	Alles/Ellis	9-unit PRD revised project
210 Church Street	Natale	Hood property -Phase 2 (40+ units)
235 Shelburne St	Farrell	Panda Inn site- (housing/mixed use)
Main & St. Paul	Farrell	Redevelopment-Howard Bank property
Cherry Street	City	Transit Center
Battery/King	ICV	40 units + ground floor retail
151 South Champlain	King St RC	8 units
		328+/- dwelling units

Future(long-term):

Main St.	**UVM**	**Arena Facility**
453-501 Pine	Vallee	Convenience Store/Office Building (Sketch Plan 6/1/04)
Main Street/Carrigan	UVM	Two 500-car parking garages
St. Joseph's	TBD	Reuse Plan for Diocese property
Trinity Campus	UVM	Campus Reuse Plan
Browns Ct/Elmwood	City	60 units Housing
Cherry Street	State of VT	State Health Department Expansion
North Avenue	State of VT	State Office Expansion
Vt. Railway/LCT	CVR/LCT/City	Rail Yard Relocation/LCT Dev.
Moran Redevelopment	City/YMCA	YMCA Relocation (Feasibility Study underway)
Interim Dev. Area	City	Mixed Use Development-Waterfront
		60+ dwelling units

(Projects in **bold** indicate new projects or a change in status from prior report)

cc: City Council
Conservation Board
Department Heads
Design Advisory Board
Development Review Board
Planning Commission
Technical Review Committee

March 20, 2003

Richard Becker, AIA
Rabideau Architects
299 College Street
Burlington, VT 05401

Re: Ability to Serve – Residential Apartments – 354 Manhattan Drive

Dear Richard:

The Burlington Electric Department (BED) will be able to provide electric service to this project. However, provision of electric service to this project will be contingent on compliance with all applicable rules and regulations of the Burlington Electric Department and the State of Vermont Public Service Board.

BED Energy Services staff will work with you to ensure that the design complies with the Guidelines for Energy Efficient Construction for the City of Burlington, Vermont, November 13, 2000. In addition, BED is interested in assisting with the identification, analysis and implementation of cost-effective energy efficient design, emerging technologies and alternative energy system options. Please call Chris Burns, Director of Residential Services, BED at 865-7337 to begin this process. Early involvement by BED and periodic review will expedite the approval process and assure access to available energy efficiency rebates.

If you have further questions or concerns, please feel free to contact me at 865-7323.

Sincerely,
BURLINGTON ELECTRIC DEPARTMENT

Andy Naughton
Line Extension Coordinator/ROW

Howard Loso, BED
Chris Burns, Energy Services

MEMORANDUM

To: John Rasys, Building Inspector, Dept. of Public Works, City of Burlington
From: Chris Burns, Director of Residential Services
Date: February 7, 2002
Subject: **3 Cathedral Square Additions and Alterations.**

The Energy Services Area of the Burlington Electric Department (BED) has reviewed the plans and specifications referenced below for the subject project and found that the project satisfies the requirements of the Guidelines for Energy Efficient Construction.

The review is based on project documents referenced below. Additional modifications to the design and/or project documents subject to the Guidelines for Energy Efficient Construction will require approval by this office.

Project Plans: 3 Cathedral Square Additions and Alterations, 12-5-2001; **NOTES: 1. Truex Cullins & Partners Architects (Sandra Sila and\or Anne Connell) will provide BED with the specific window and glass door U-values and the solar heat gain coefficient numbers. For this project the "center of glass" U-value for the window and door glazing needs to be .29 or less and the solar heat gain coefficient .64. The glazing description in the plans indicates that these requirements have been met but the actual numbers are not provided.**

2. BED also asked Truex Cullins & Partners Architects to complete and return the Compliance Certificate Checklist for this project. The checklist is still in draft form but it is a useful tool for ensuring that no issues have been missed and that the specifications meet the Guidelines for Energy Efficient Construction.

Specifications dated: 12-5-2001

Project Contact Name: For the Owner: Cathedral Square Corporation, Joanna Valone,
Phone: 802-651-1889

For the Architect: Anne Connell, Truex Cullins & Partners Architects
Phone: 802-658-2775

Comments/Non-compliant components and suggested changes:

The building envelope, lighting and HVAC equipment all meet or exceed the Guidelines. Therefore, I have no suggested changes to make to the specifications or plans but do recommend the following:

1. Air Conditioning: Supply BED with the exact size (tons) of the two air conditioning units. BED will offer a cash incentive to install higher efficiency units. The incentive amount is based on the size of the equipment.

2. Heat Recovery System and Boiler: We strongly recommend participation in Vermont Gas System's energy efficiency program where incentives may be given for higher efficiency equipment. Bob Hereford, of VGS, can be reached at 863-4511.

BED Reviewer: (Print): _____

(Sign): _____ Date:_____

CC: Anne Connell and Sandra Sila

Energy Tip from the Burlington Electric Department

How much can most home energy efficiency improvements really save?

It really depends on the work that you are doing and how much energy you use. For example, a typical household can save about 50% on hot water heating costs by switching their electric hot water tank to natural gas. However, it is important to know what percentage hot water is of your total yearly energy bill before knowing how much you will actually save. For some houses it can be 60% of the total bill and others 20%. The same thinking applies to insulation, replacement windows, siding and new heating equipment.

Unfortunately, we have talked with many customers who have made major investments such as window replacement expecting major reductions in their energy bills that did not occur. The Burlington Electric Department, Vermont Gas systems and Efficiency Vermont are always available to talk with you about what makes the most sense for you and your building.

If you're a Burlington resident and want more information on energy efficiency call 865-7337.

An Energy Tip From the Burlington Electric Department

In need of a better bathroom exhaust fan?

Properly installed bathroom exhaust fans can help to improve indoor air quality and help to reduce your maintenance costs in terms of painting and other moisture related deterioration problems. This is especially true in bathrooms that see a lot of showers.

Often times standard exhaust fans do not work well. Here are a few typical reasons: the fan is so loud that it's not used; the exhaust hose has too many turns which reduces air flow dramatically; the gap around the fan housing and sheetrock is not caulked so the fan pulls air from above the ceiling and not the bathroom; the fan is simply not powerful enough for the room; occupants turn the fan off immediately after showering and\or there is not enough space underneath the bathroom door to provide easy supply air for the fan.

If your fan can't hold a section of tissue paper when running, then you likely have on or more of these problems. Fortunately, there are several quiet, powerful, low energy using fans available. You can also control them with 24-hour programmable timers.

If you're a BED customer and want more information on this topic or other energy efficiency matters call 865-7337 or email cburns@burlingtonelectric.com.

BED's Energy Efficiency Story

In 1990, the voters of Burlington authorized a fund to begin energy efficiency programs. These programs ran successfully throughout the '90's. In 2000, BED added the statewide programs of Efficiency Vermont to its offerings. The combination of these services today provides Burlington's homes and businesses with a complete range of solutions for their energy efficiency needs. The funding for these programs comes from a small energy efficiency charge (EEC) that is added to the monthly electric bill.

Energy Efficiency…

*Helps to reduce costs.

When our customers use electricity wisely, they keep more money in their pockets and help BED to provide stable rates. A kilowatt-hour avoided through energy efficiency costs less that a kilowatt-hour generated. And, of course, turning things off when they are not being used doesn't cost customers anything at all!

*Helps to protect the environment.

The less power we need to generate, the cleaner our air and water will be, and we'll emit fewer greenhouse gasses into the atmosphere.

*Promotes the local economy.

Most dollars spent on energy efficiency stay in the local economy where they recirculate, promoting economic development; they are not exported to purchase power.

Burlington Electric Department
585 Pine Street
Burlington, VT 05401-4891

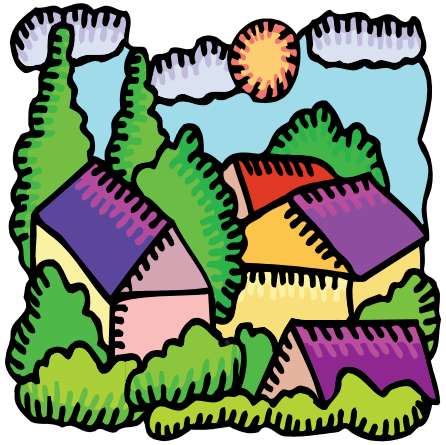
Energy Solutions for your Home

Burlington Electric Department
585 Pine Street
Burlington, VT 05401-4891
802-658-0300
www.burlingtonelectric.com

Energy Efficiency in the Home

Energy Star Appliances

If you are buying new appliances, be sure they have the Energy Star label, so you will know that they meet high efficiency standards. BED and Efficiency Vermont provide cash incentives for lamps, light fixtures, ceiling fans, room air conditioners and clothes washers that carry this label. (Energy Star is a program of the U.S. Department of Energy and the Environmental Protection Agency.)



Weatherization Assistance

If you are an income-eligible home owner, the Weatherization Assistance Program (delivered in Burlington by the Champlain Valley Weatherization Services) provides comprehensive energy efficiency measures. This program includes promoting Energy Star lighting and appliances, insulation and air sealing work, hot water conservation measures, along with fuel switching of electric space and water heating systems.

Smartlight

If you want to save money on lighting, consider BED's Smartlight program. Through Smartlight customers may lease compact fluorescent light bulbs for a very small monthly fee. At the end of the five-year lease, the customer owns the bulb. Customers can also find instant-rebate coupons in stores around Vermont that sell light bulbs. Compact fluorescent technology has improved greatly in recent years; lighting quality now rivals that of incandescent bulbs.

Residential Programs

If you are building a new home or an apartment building, the Residential New Construction program and the Residential Energy Efficiency Program (REEP) provide comprehensive technical assistance and cash incentives to homeowners, developers, affordable housing agencies and investment property owners to improve efficiency in newly built and substantially renovated buildings beyond code requirements. These programs address all major end uses – space heating, water heating, central cooling, major appliances and lighting for high-use areas.

Electric Hot Water

If you have electric hot water in your house or apartment, BED will install free energy- and water-saving measures. BED's energy specialist will also review household energy use and provide information on other energy-savings opportunities.

Time of Sale

Burlington's Time of Sale ordinance requires that residential rental properties comply with minimum energy efficiency standards at the time they are sold or purchased. BED administers the program and assists property owners in carrying out the work.

Find out how to reduce your energy usage and save money every day. Visit our website www.burlingtonelectric.com for tips. BED has other information and products available to help you save energy. Please visit our Customer Center at 585 Pine Street, or call 658-0300 and ask for "Energy Services."

BURLINGTON Electric DEPARTMENT

How Much Electricity Do You Use?

There is an easy way to figure out how much it costs to run everyday items such as computers, lights, etc. And knowing this information can help you discover ways to save.

In order to figure out the cost to run an appliance, find out the number of watts that an appliance uses and multiply that number by the number of hours it is turned on each day (or month or year). Divide that by 1,000 to figure out the kilowatt hours (kWh) used. Then multiply that number by the cost of a kWh. At BED it is about $.010.

For example, if you use a 75-watt incandescent light bulb on your porch for about 10 hours a night for a 30-day month, you can figure out the cost this way: (75 watts X 10 Hours X 30 days) / 1000 = 22.5 Kilowatt Hours per month X $.10 = $2.25 per month. Replace the 75-watt incandescent bulb with an 18-watt compact fluorescent and your monthly cost drops to $.54 per month.

You can usually find the wattage of most appliances stamped on the bottom or back of the appliance. The wattage listed is the maximum power drawn by the appliance. Because many appliances have a range of settings (for example, the volume on a radio), the actual amount of power consumed depends on the setting used. If only the amperage (Amps.) is provided multiply it by 115 volts; this will equal the wattage.

Hours of operation can sometimes be difficult to know for things that operate on thermostats like refrigerators. Visit www.Burlingtonelectric.com and click on Appliance Chart where we list the average hours used per month for most appliances, or contact Customer Service at 865-7300 and request that an Appliance Chart be sent to you.

Burlington Electric Department

585 Pine Street, Burlington Vermont 05401-4891
voice 802.865.0300 (TTY/VOICE) 802.865.7386 fax 802.865.7400